

DISEASES

OF THE

CHEST

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Editorial Comment

SOUTHWESTERN
STATES ISSUE

In conformity with a policy which was started at the inception of this journal, one issue of *Diseases of the Chest*, is devoted each year, to the presentation of a picture of sanatorium facilities, of the advances made in tuberculosis control in one state or in a group of states in this country.

In 1935, the August issue of *Diseases of the Chest*, was dedicated to the State of New Mexico. In 1936, the May issue was dedicated to the State of Missouri. In 1937, the June issue was dedicated to the States of North Carolina, South Carolina, Virginia, Georgia, and Florida; and it was known as the *South Atlantic States Issue*. In 1938, the June Issue was dedicated to the States of California, Oregon, and Washington; and it was known as the *Pacific Coast States Issue*. In 1939, the October Issue was dedicated to the States of Illinois, Indiana, Iowa, and Wisconsin; and it was known as the *Mississippi Valley States Issue*. In 1940, the December Issue of *Diseases of the Chest*, was dedicated to the States of Ohio and West Virginia.

This year, it is our privilege and pleasure to dedicate this Issue of *Diseases of the Chest*, to the States of Arizona, Oklahoma and Texas; and the issue is to be known as the *Southwestern States Issue*.

Each of the states represented in this issue of the journal has contributed scientific papers, dealing with subjects related to chest diseases, and written by physicians who are closely identified with the treatment of chest diseases in those states.

Each of these states has presented a picture through the printed word and by illustration, showing the present facilities for the treatment of the tuberculous within those states.

This issue of the Journal also carries the pictures and the biographies of physicians in the States of Arizona, Oklahoma and Texas; who have pioneered in tuberculosis work in their respective states. We pay tribute to these pioneers of medicine, and only regret that we do not have the space available to include the biographies of many more of the eminent physicians who have been pioneers in this great cause.

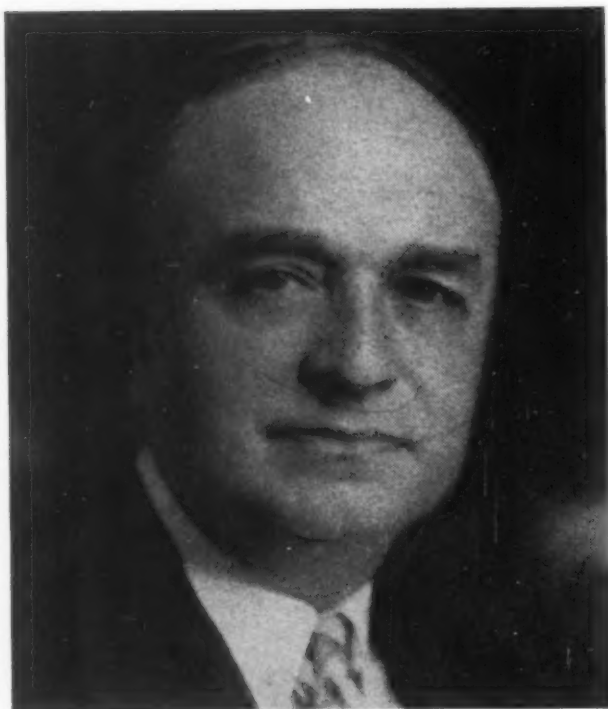
The Editorial Board of *Diseases of the Chest*, expresses its appreciation to the State Committees under whose direction this issue of *Diseases of the Chest* was compiled, and also to the officials of sanatoria, tuberculosis societies, and to all of the other individuals and agencies that cooperated to make this issue of *Diseases of the Chest* possible.

—F. W. B.

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CHAS. M. HENDRICKS, M.D.

Dr. Hendricks is one of the few American Physicians who began the study and practice of tuberculosis upon his graduation from Medical College. After the elementary schools, he took his pre-medical work at Miami University, Oxford, Ohio; and graduated in Medicine at the Medical College of Ohio (Department of Medicine, University of Cincinnati) June, 1905.

From June 1905 to June 1906, he served as senior house physician in the National Jewish Hospital, Denver, Colorado. From June, 1906 to January 1908, he served as assistant physician at Agnes Memorial Sanatorium, Denver, Colorado. In February 1908, he became Medical Director of the Albert Baldwin Sanatorium, El Paso, Texas. In 1909, he resigned this position, to go into private practice in El Paso. In 1913, he built the Hendricks Sanatorium and was superintendent and medical director of this institution until 1920 when Dr. J. W. Laws became associated with him as associate Medical Director of the institution.

In 1909, Dr. Hendricks aided in organizing the first tuberculosis clinic in El Paso, and served as director of the clinic for several years. In 1912, he was appointed one of the American Delegates to the World Congress of Tuberculosis in Rome, Italy. While in Europe, he attended many clinics, among them Forlanini's Clinic in Rome, and became intensely interested in pneumothorax. Dr. Hendricks was one of the first physicians to begin the regular use of pneumothorax in this country, and is probably the first to successfully employ it bilaterally.

When Dryer reported his de-fatted tuberculosis vaccine, Dr. Hendricks visited Sir Almoth Wright at St. Mary's Hospital in London, and also Dr. Dryer's laboratory at Oxford for the purpose of investigating the merits of this new vaccine; Like many other attempts, Dr. Dryer's vaccine proved to be only another type of tuberculin of questionable value.

Dr. Hendricks has written innumerable articles on tuberculosis and allied subjects. He was the first editor of DISEASES OF THE CHEST and is still a member of the editorial board. He had a prominent part in organizing the American College of Chest Physicians. He is past president of the El Paso County Medical Society. He is a member of the Southwestern Medical and Surgical Association, Texas State Medical Association, and the American Medical Association. In 1927, he was elected a Fellow of the American College of Physicians.

Dr. Hendricks has always been interested in Military Medicine, and is chairman of the Military Affairs Committee of the American College of Chest Physicians. Soon after graduation in medicine, he was appointed a member of the Medical Reserve Corps of the United States Army. In 1910 and 1911, he served as post surgeon at Ft. Bliss, Texas. Upon the entry of the United States into the World War, he was ordered to duty with the rank of captain. He served with the A. E. F. in France and in the Army of Occupation in Germany. He was discharged in 1919, a lieutenant Colonel, and was appointed a Colonel in the Medical Corps in 1922, a commission he still holds.

Dr. Hendricks has devised a mechanized Aid Station which is now under consideration by the Armored Force Board of the United States Army. He is serving his sixth year as the Chairman of the El Paso Chapter of the American Red Cross. Dr. Hendricks is married, and has four daughters.

DISEASES OF THE CHEST

EDITORIAL COMMITTEE:

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Chairman Arizona Section



CHARLES S. KIBLER, M.D.

Dr. Kibler was born in Newark, Ohio, on July 25, 1889. He attended the High School at Newark and took his pre-medical training at the Ohio State University. He graduated in medicine at the Rush Medical College, Chicago, Illinois; and interned at the Cook County Hospital, Chicago.

Dr. Kibler took one year of research work under Ludwig Hektoen at the McCormick Institute for Infectious Diseases at Chicago, and during 1916 and 1917, he was associated with Dr. James H. Herrick at Chicago.

In 1917, Dr. Kibler entered the U. S. Army Service as a reserve officer and was assigned to

The Tuberculosis Campaign in Arizona

T. C. Cuvellier *

Long before the first railroad train steamed into Arizona, climate had been associated in the public mind as a major factor in the cure of tuberculosis, and for several decades Arizona has lured to her warm, dry atmosphere thousands of patients from every part of the nation. Many of these have been pioneers in the industrial and professional life of the state and have lived to old age and established reputations as leaders in business, civic and political enterprises.

It can not be denied that the climate of Arizona adds to the pleasure of living and gives comfort to the sick, and so it is not to be wondered that the poor as well as the self-supporting patient has migrated here in search of health. They have come into the land of sunshine in all stages of tuberculosis, unfortunately often in too far advanced a stage of the disease to offer hope of arrest.

Tuberculosis as a public health problem was recognized as such in Arizona over thirty years
(Continued to Page 119)

Camp Shelby, Mississippi. He served at this base hospital as an examiner for cardio-vascular diseases and he also served as Assistant Medical Chief under Dr. James E. Paullin of Atlanta, Georgia, for the duration of the World War.

In 1919, Dr. Kibler was relieved of his army duties and located in the private practice of medicine at Tucson, Arizona; where he has been ever since.

Dr. Kibler is a Fellow of the American College of Physicians, a Fellow of the American College of Chest Physicians and Governor of the College for Arizona; an Associate Member of the American Association for the Study of Allergy, and a Certificate of the American Board of Internal Medicine.

Tuberculosis Pioneers in Arizona



HIRAM W. FENNER, M.D.
1859 - 1929

Doctor Fenner was born in Bucyrus, Ohio, in 1859, the youngest of four children. He first began the study of medicine with Dr. George Crape at Terre Haute, Indiana, as his preceptor, later entering the Medical College of Ohio (now the University of Cincinnati), where he graduated in 1881. During his career in Medical School he received a medal for proficiency in his studies. He at once, after graduation, went to Bisbee, Arizona, as physician for the Copper Queen Mining Company, where he remained two years. In 1883 he moved to Tucson where he established himself in private practice, as well as becoming Railroad Surgeon at this point. He carried on his practice in Tucson until his retirement in 1922.

During his years of practice in Tucson, Doctor Fenner became a charter member of the Arizona Medical Association, which was organized in 1892. During his connection with the Medical Association he was Vice President (1897), Treasurer (1900), and President (1901). In 1902 he was elected Delegate to the American Medical Association Convention.

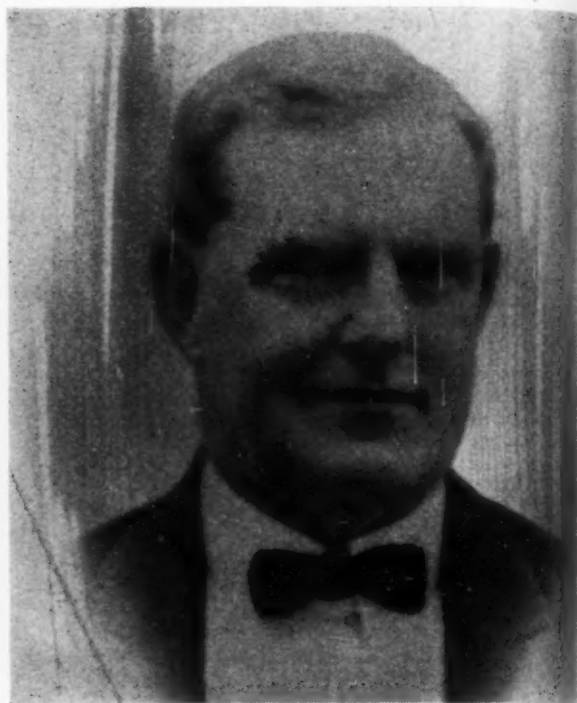
Organization of the Arizona State Board of Medical Examiners in 1903 brought the selection of Doctor Fenner as the first member from this section. He remained a member of the Pima County Society until his retirement in 1922.

On my arrival in Tucson early in 1912, I found Doctor Fenner well established in his profession, and one of the most highly respected citizens of a thriving city of some 13,000 population—more than fifty percent of which were immigrants from Mexico.

Many of the white population, including some of the leading business and professional men, had come to Tucson on account of a tuberculosis infection either in themselves or some member of their family.

On account of the prevalence of this disease in and around Tucson, Doctor Fenner early became interested in its treatment, and when I contacted him on my arrival here in 1912 he was the only physician then in the city who was devoting any time to the treatment of tuberculosis. He probably had ninety

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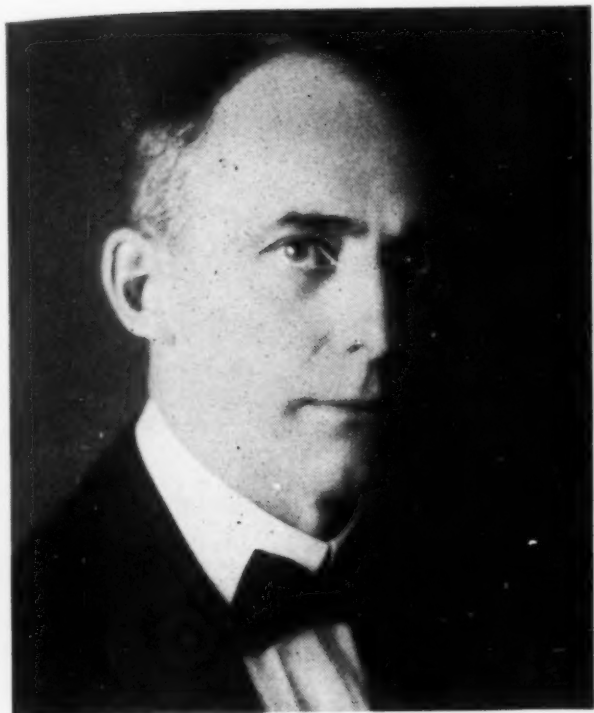
ROBERT W. CRAIG, M.D.
1871 - 1933

Dr. Craig was born in Danville, Ohio, in 1871, pursued his academic studies at the University of Kansas and graduated from Rush Medical College in 1895. He spent two years as interne at Cook County Hospital, where he became well acquainted with Dr. John B. Murphy. He was surgical assistant to Dr. Murphy when he was compelled to come to Arizona on account of his own health, in 1898. The friendship with Dr. Murphy continued throughout the life of the latter who visited Phoenix each winter for many years. It was in 1898 that Dr. Murphy first proposed the use of artificial pneumothorax for tuberculosis. In 1900 Dr. Craig accompanied Dr. Murphy to France and on his return to Arizona he brought with him the first apparatus for inducing artificial pneumothorax to be used in Arizona. This was a rubber bag with a nozzle connected with a needle; the bag was inflated with nitrogen and the gas forced into the pleural cavity by compressing the bag. He used this on some patients, so that undoubtedly the credit for first using artificial pneumothorax on patients in Arizona belongs to Dr. Craig. Both he and Dr. Murphy abandoned the use of this procedure at that time, and in 1905, according to Dr. Louis Dysart who became associated with him in that year, was not using the treatment, evidently finding it difficult to control without x-ray.

Dr. Craig became a member of the Arizona State Medical Association in 1900 and in 1902 read a paper before the Association on "Open Air Treatment of Tuberculosis." He evidently was not fond of writing papers, though his experience in tuberculosis was considerable.

In 1905 he was married to Mrs. Maud Ward of Victoria, B. C. whose daughter (Miss Kitty Craig) was adopted by him. Mrs. Craig died in 1922 and Dr. Craig married a second time to Mrs. Jo Paschall in 1924, who survived him and still resides in Phoenix. Dr. Craig was a very successful business man, owning much valuable property in downtown Phoenix. He died July 10, 1933.

Tuberculosis Pioneers in Arizona



JOHN W. FLINN, M.D.
1870 -

Dr. Flinn was born in Nova Scotia in 1870. He graduated in medicine from McGill University in 1895, following which he practiced in Nova Scotia for three years. He moved to Kingman, Ariz., in 1898 and to Prescott in 1902. He established the Pamsetgaaf Sanatorium at Prescott of which he is still the Medical Director. This institution has become nationally known for its advanced work in tuberculosis, as well as for its sane and well balanced regimen of rest treatment. Dr. Flinn early became a firm advocate of bed-rest treatment which has perhaps been the basis for the success of his work. His first paper before the Arizona State Medical Association was in 1905 on "The Best Treatment of the Pre-Tubercular and Those in the Early Stages of Tuberculosis,—a Homily." He has written and presented many papers before state and national societies. Of late years his outstanding work has been on blood findings in tuberculosis and their significance and investigation of the bronchomycoses. A joint paper by him and his son, Dr. Robert Flinn, on "Monilia Infection of the Lung" is one of the outstanding publications on this subject in medical literature. Dr. Flinn was married in 1894 to Miss Maggie B. McKay of Nova Scotia, and five children have been born to them. One of these (Dr. Robt. S. Flinn) was for a time associated with his father, but later removed to Phoenix, where he still practices. Another physician son (Dr. Zebud M. Flinn) was also associated in practice at Pamsetgaaf Sanatorium for a time; he recently died in Central America while on a vacation tour there. Dr. and Mrs. John Flinn still direct the Pamsetgaaf Sanatorium. His most recent paper is one on "Childhood Tuberculosis" not yet published. Dr. Flinn has been affiliated with state and national tuberculosis associations throughout his professional career. He has been a valuable and honored member of the State Medical Association since 1901, serving for many years as its secretary, as first vice-president in 1913 and as president in 1914.



W. WARNER WATKINS, M.D.
1883 -

Dr. Watkins was born in Keysville, Charlotte County, Virginia, October 30, 1883.

He was graduated in 1906 from Medical College of Virginia and was licensed in the State of Arizona, June 15, 1906. The same year he came to Arizona as contract surgeon for the Shannan Copper Company at Metcalf, remaining there until 1907 when he came to Phoenix and engaged in private practice. After five years in general practice, he specialized in tuberculosis three years, and then entered the special work of clinical laboratory and roentgenology, founding the Pathological Laboratory in 1914.

He was early interested in the treatment of tuberculosis, and in 1909 presented a paper to the Arizona Medical Association on "Immunity and Tuberculosis." In 1912, he delivered the annual essay to the Arizona Medical Association on the subject "Tuberculosis, A Disease of the Individual."

In 1912 he used artificial pneumothorax for treatment of tuberculosis. This was possibly the first time that it was used in the State of Arizona, although there is some question whether Dr. R. W. Craig may not have used this once or twice earlier following his association with Dr. John B. Murphy.

In 1913 Dr. Watkins presented a paper to the Arizona Medical Association on "Artificial Pneumothorax in Pulmonary Tuberculosis."

He was editor of the Arizona Medical Journal from its start in 1913 until it merged with Southwestern Medicine in 1917, and has been the editor of Southwestern Medicine. He is a member of Maricopa County Medical Society of which he was secretary from 1909 to 1915, and president in 1916. He is a member of the Arizona State Medical Society of which he was president in 1918, of the Arizona Territorial Medical Association of which he was secretary in 1912-1913, Medical and Surgical Association of the Southwest of which he was president in 1922, and has served as secretary since 1924. He belongs to the Pacific Coast Roentgen

(Continued to Page 118)

Arizona Sanatoria



VETERANS' ADMINISTRATION FACILITY TUCSON, ARIZONA

The Veteran's Administration hospital located three and one half miles south of Tucson on 117 acres of land was built and opened for patients on October 14, 1928. This replaced the old hospital popularly known as Pastime Park which had been hastily constructed by the United States Public Health Service in 1920 to care for the great influx of veterans who were attracted to Tucson because of its climate.

The architecture is Spanish to conform with the type of buildings used in this section. The architect being inspired by the Mission of San Xavier del Bach five miles distant.

The hospital with a capacity for 358 patients consists of twenty two modern fire proof buildings costing approximately \$2,000,000.00. This Facility, built primarily for the treatment of tuberculosis, has been expanded to care for general medical cases.

The hospital is fully equipped and has a competent staff of physicians and other personnel for the care and treatment of tuberculosis, including surgical collapse therapy of all types. At this time there are patients receiving treatment here from forty four States of the Union.—*Samuel H. James, M.D., Manager.*



STATE WELFARE SANATORIUM TEMPE, ARIZONA

The State Welfare Sanatorium is a 100-bed institution devoted to the active treatment of tuberculosis. The building, of unusual Moorish design, tops a butte just north of the city of Tempe.

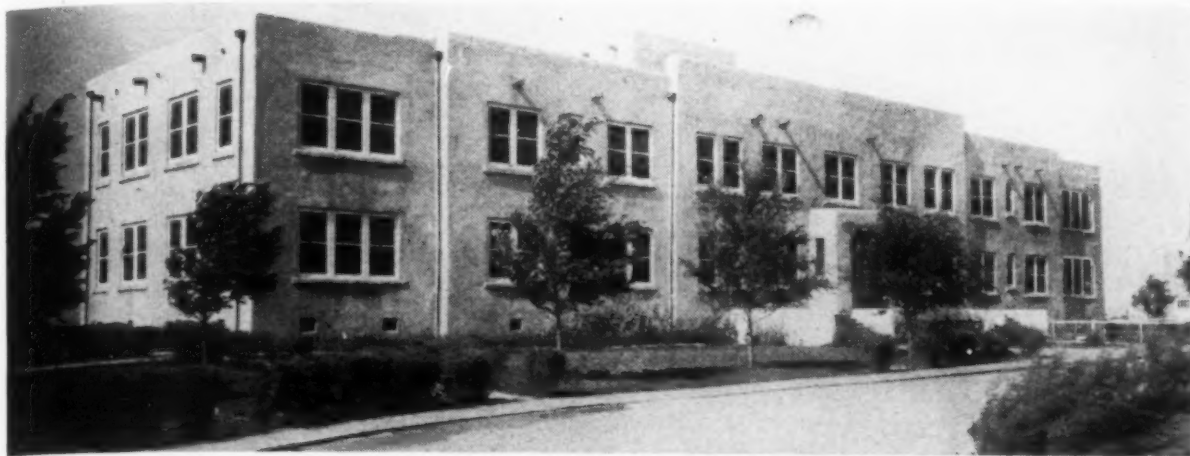
The sanatorium was constructed by the PWA in 1934 and operated for a time by the FERA, and later by the State Board of Public Welfare. It is now administered by the State Department of Social Security and Welfare under the supervision of William K. Kemper.

The medical policies are guided by an advisory committee whose members are Dr. E. W. Phillips and

Dr. Fred G. Holmes of Phoenix, and Dr. Samuel H. Watson of Tucson. The medical officer is Dr. Lloyd K. Swasey of Phoenix. All surgical procedures are performed by Dr. Howell Randolph and Dr. Victor S. Randolph of Phoenix.

The beds are allotted to counties on the basis of population. Three years' residence in the state and inability to provide for one's own care as evidenced by a thorough investigation are the requirements for admission. Only those whose prognosis indicates that they will respond favorably to active therapy are admitted. Chronic and terminal cases are refused.

Arizona Sanatoria



WINSLOW INDIAN SANATORIUM WINSLOW, ARIZONA

Winslow Indian Sanatorium, located on U. S. Highway 66, one mile West of Winslow, Arizona, enjoys a warm desert climate usually found at an altitude of 4800 feet. The Institution admits tuberculous Indians only and was built by the United States Indian Service, Department of the Interior, at a cost of \$150,000 exclusive of equipment. The sanatorium was formally opened and admitted its first patient on November 16, 1933. At the end of December 1933, there was a total of 16 patients admitted with a staff of one physician, two graduate nurses and six other employees. The annual report of the fiscal year 1934, showed a total of 90 patients admitted; with two nurses and fourteen other employees on duty.

The rated capacity is 50 beds but there have been as high as 60 patients hospitalized. The patients' rooms are painted in light pastel shades of green, orchid, and yellow colors with Indian designs applied

to the border. The ambulatory patients' dining room has Indian murals on the four walls which were done by rehabilitated patients. The hallway of the main entrance to the hospital building has Indian murals on the two walls painted by a Kiowa Indian patient. Positions throughout the institution are filled by rehabilitated patients in as far as it possible to do so.

Collapse therapy is chiefly limited to artificial pneumothorax at present. The census is 46 patients of whom 20 are receiving pneumothorax therapy. The staff consists of the physician in charge, seven graduate nurses and twenty two other employees. Dr. William G. Lewis, has been physician in charge since February 1, 1936. The sanatorium is under the Navajo Indian Service located at Window Rock, Arizona, with Mr. E. R. Fryer, General Superintendent and W. W. Peter, M.D., Dr. P. H., as Medical Director.



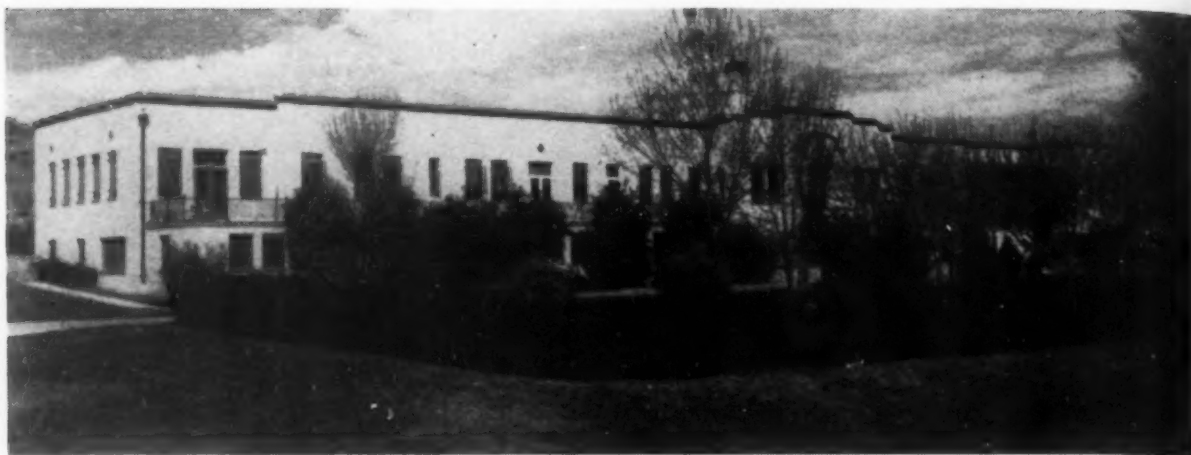
FORT DEFIANCE (Indian) SANATORIUM FORT DEFIANCE, ARIZONA

The Indian Sanatorium at Fort Defiance is a one story building remodelled in 1939 containing facilities for caring for 100 tuberculosis patients. It is devoted entirely to the treatment of tuberculosis among Indians, particularly the Navajos of this 25,000 square mile Reservation.

The Sanatorium is a Unit of Navajo Medical Center which provides an additional 150 beds for general cases and has a staff of five physicians and 41 nurses.

Navajo Medical Center is under the direction of the Department of the Interior.

Arizona Sanatoria



SAN XAVIER INDIAN SANATORIUM TUCSON, ARIZONA

Realizing the necessity of greater facilities for the treatment of tuberculosis among Indians, the United States Indian Service, in 1932, set aside twenty-seven acres of land seven miles south of the City of Tucson upon which San Xavier Sanatorium was constructed.

The building was completed in 1932 and opened early in 1933. It is of hollow tile with stucco finish in the Spanish type of architecture and has a capacity for forty six patients. The lower floor is occupied by the kitchen, serving-kitchen, wash rooms containing sterilizers for dishes, and dining rooms for attendants and nurses. The remainder of this floor is composed of an assembly room, occupational therapy room, store

rooms and the pathological laboratory. The upper floor is devoted entirely to the treatment of patients. Here is located the executive offices with consultation room for physicians and nurses. There is a well equipped surgery and x-ray room adjoining. The remainder of the floor is composed of one open ward of fifteen beds, four four-bed wards, four two-bed wards and twelve single rooms. The superintendent is Dr. William A. Fahey, who is assisted by Dr. Dan Mahoney, consultant in Diseases of the Chest, Dr. Edward J. Gotthelf, consultant in General Surgery and Dr. R. E. Hastings, Orthopedic Surgery, all of the City of Tucson.



KAYENTA INDIAN SANATORIUM KAYENTA, ARIZONA

Kayenta Indian Sanatorium forms a part of the Tuberculosis Sanatorium group of the Navajo Service. It is located 160 miles north and east of Flagstaff. It is the farthest from the railroad of any postoffice point in the United States.

Kayenta Sanatorium occupies the building originally set up for a boarding school, and later used as a general hospital. It is a completely self contained unit and is in charge of a physician trained in thoracic work. It is equipped with x-ray, laboratory, and pneumothorax apparatus. Occupational therapy is stressed.

The capacity of the sanatorium is 54 patients and patients of all age groups are admitted from the entire reservation.

The sanatorium serves as a clinical center for the entire northern part of the Western Navajo Reservation. Clinics are held at widely separated areas and in addition to treatment, public health work and educational features are stressed. Through the courtesy of Mr. George Herriman, the famous cartoonist, films are shown regularly to the Indian population.

Arizona Sanatoria



THE DESERT SANATORIUM TUCSON, ARIZONA

THE DESERT SANATORIUM was established in 1926 and is situated five miles northeast of the city at Grant Road and Beverly Boulevard.

Eighteen buildings are artistically grouped in a 160-acre tract attractively landscaped.

The sanatorium provides complete hospital facilities for approximately ninety patients, with well-equipped clinical and x-ray laboratories, surgery and physiotherapy.

All types of patients excepting psychotics are admitted.

A separate section is maintained for the accommodation of the tuberculous.

A full-time medical staff of five physicians is assisted by a group of visiting physicians in the surgical specialties.

Its cuisine supervised by graduate dieticians is well known for its excellence.

Rates and other pertinent information can be secured by addressing:

The Secretary DESERT SANATORIUM, Tucson, Ariz.



ST. MARY'S SANATORIUM TUCSON, ARIZONA

St. Mary's Sanatorium is one of a group of five buildings comprising the institution which is operated by the Sisters of St. Joseph of Carondelet in connection with a general hospital. The sanatorium with a capacity of thirty-five beds is circular in structure, permitting cross ventilation. The rooms are large and are provided with every modern convenience. A cheery patio surrounded by porches makes it possible for the patients to enjoy the "sunny outdoors" most of the day.

The institution is equipped for every type of service required, medical, surgical, nursing service, x-ray and laboratory. The hospital records show one hundred twenty-five cases of chest surgery performed during 1940.

The institution is approved by the American College of Surgeons and holds memberships in the Catholic Hospital Association, American Hospital Association, Western Hospital Association and the Arizona Hospital Association.

Arizona Sanatoria



ST. LUKE'S IN THE DESERT TUCSON, ARIZONA

St. Luke's in the Desert is a sanatorium for the treatment of pulmonary tuberculosis, carried on according to modern concept with collapse therapy when indicated. It is an endowed non-profit institution operated by the Episcopal Church for men in need of some financial assistance, regardless of church affiliations. With a capacity of 35 patients only those cases with a reasonable chance for recovery are ac-

cepted. The hospital charges a flat rate of \$12.00 per week which includes medical attention and artificial pneumothorax. X-Rays and laboratory analysis are additional and are given to the patients at cost.

Herman O. Rasche Superintendent
Dr. Samuel H. Watson Medical Director
Dr. W. R. Hewitt Physician in Charge



OLD PUEBLO CASITA TUCSON, ARIZONA

The Old Pueblo Casita, a picturesque pueblo-type guest house, stands on the edge of the desert. One is immediately attracted by the quiet homey atmosphere designed to set the tired mind and body at ease. There are private rooms for every guest, with French doors opening onto a wide porch. Modern interiors and tastefully chosen colors in furniture and draperies provide a harmonious setting for the convalescent patient.

Food, an important item in the day of a sick person, is excellently prepared at the Old Pueblo, Miss Cuff,

the owner, is a graduate nurse and dietician and is ready to handle special diets as ordered by your physician.

We cater to those suffering from arthritis, asthma and sinusitis. We do not accept open cases of tuberculosis.

The Old Pueblo Casita is open to all accredited physicians.

For further information inquirers may write to:
Miss G. M. Cuff, Old Pueblo Casita, 2001 North Park Avenue, Tucson, Arizona.

Arizona Sanatoria



ANSON REST HOME

TUCSON, ARIZONA

THE ANSON REST HOME, located in the Sunshine City of Tucson, in view of the mountains and desert, has for the past sixteen years been devoted to the care of tuberculosis and allied diseases.

Although, essentially a sanatorium with all the restrictions necessary for the welfare of the patient, it has retained a homelike atmosphere.

The structure is of brick and stucco and there are four buildings with a capacity of 30 beds. It is managed by graduate nurses and staffed by nurses experienced in the care of tuberculosis. The food and service and comforts are of high quality. The rates are moderate, with rates ranging from \$17.50 to \$35.00 per week.



HILLCREST SANATORIUM

TUCSON, ARIZONA

The Hillcrest Sanatorium, a thirty bed institution, was established in 1922. It is ideally located on the northern edge of Tucson, having a wonderful view of the desert and four mountain ranges.

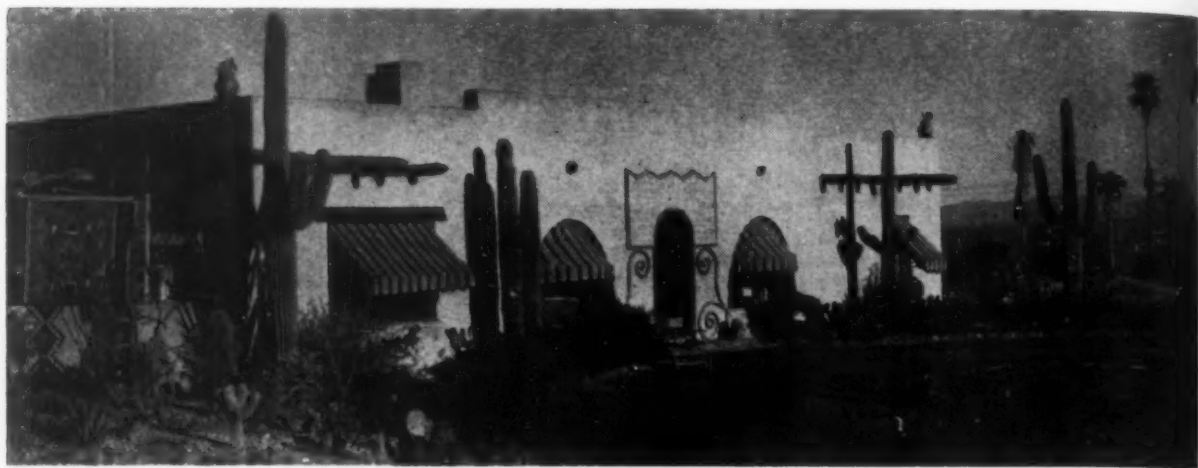
Hillcrest has given years of service to those requiring treatment and rest to restore them to health. The very best of service and a friendly atmosphere are always

maintained.

The building is insulated and otherwise constructed so that it is cool in summer, and warm in winter. Most of the rooms are private and steam heated. A few double rooms are available.

The rates are moderate.

Arizona Sanatoria



REARDON SANATORIUM

TUCSON, ARIZONA

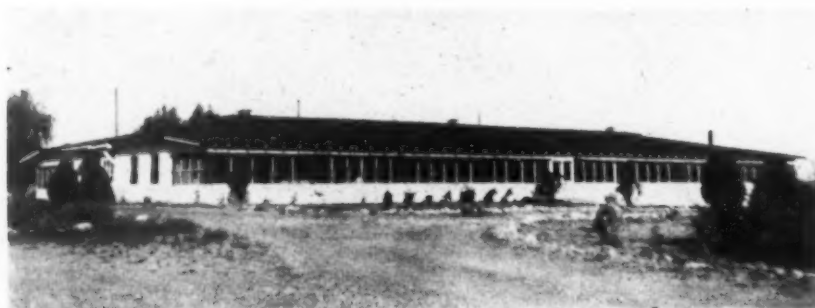
Reardon's, a privately owned sanatorium of twelve bed capacity, was opened October 1st, 1930. Located in the northeast section of Tucson, it has an unobstructed view of the lovely Catalinas and surrounding mountains. The landscaping of palms and cacti, together with a continuously green patio, where beds may be rolled onto the terrace, makes a very pleasant and restful spot in the desert. It is away from the noise and dust of city traffic, yet only a few minutes ride from the business district.

The outstanding feature is personal attention to the patient, as well as to trays and prescribed diets. Though a good routine is maintained, the usual hospital atmosphere is avoided.

There are private rooms only, with or without connecting bath, each one having southern exposure.

The sanatorium is open to all physicians in good standing.

Rates range from \$35.00 to \$52.50 weekly.



ARIZONA STATE ELK'S SANATORIUM

TUCSON, ARIZONA

In 1931 the Elks of the State of Arizona established the Arizona State Elks Association Tuberculosis Hospital at Tucson. Its primary purpose was to take care of those Elks from all over the United States who come to Arizona in search of health. It is maintained by contributions of Elks of the State of Arizona and the Elks.

The hospital is located on a 15-acre tract of ground just to the west of Tucson overlooking the city. There are accommodations for twenty four patients, who are

divided into private room and ward patients.

The hospital staff consists of all the Elk physicians of Tucson, headed by Dr. Samuel H. Watson and Dr. Dan L. Mahoney. Miss Margaret A. Thomas, a registered nurse formerly of West Penn Hospital of Philadelphia, is the Superintendent in charge.

The management of the hospital is handled by an Executive Committee of the Arizona State Elks Association consisting of five men. The Executive Secretary is M. H. Starkweather, Tucson, Arizona.

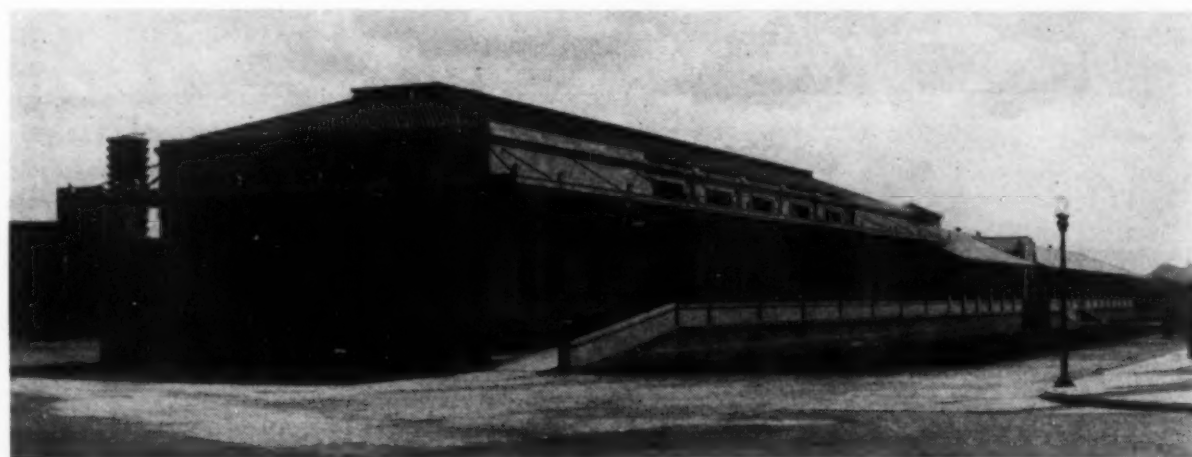
Arizona Sanatoria



PAMSETGAAF SANATORIUM PRESCOTT, ARIZONA

Pamsetgaaf Sanatorium is a private cottage type sanatorium of thirty beds, fully equipped for the treatment of all types of pulmonary disease. It is located in a pine forest at an elevation of approximately 5,000 feet with an excellent year around climate. Dr. John W. Flinn is the medical director.

The rates of \$35.00 to \$100.00 per week include board and room, nursing care, room linen and towels, pneumothorax, laboratory work, and medical attention. Pamsetgaaf Sanatorium was founded on April 27, 1903. It was one of the first sanatoria opened for the treatment of tuberculosis in Arizona.



SOUTHERN PACIFIC SANATORIUM TUCSON, ARIZONA

January 1, 1930, Dr. W. B. Coffey became Chief Surgeon of the Southern Pacific Company and found in the employ of the Company about seventy-five employees who were infected and sick with Pulmonary Tuberculosis.

Being an aggressive man who had spent many years in the medical service of the Southern Pacific Company, he was ever interested and active in behalf of the sick employee, and immediately set about to correct a defect in the hospital association rules which did not include the hospitalization and treatment of persons afflicted with pulmonary tuberculosis.

A survey of the different properties along the lines of the company, brought to light some valuable vacant buildings in a beautiful park adjacent to Tucson. Since the buildings were readily adaptable, and the location one of beauty in a salubrious climate, he immediately decided on this spot and set about, in 1930, the construction and equipment of what proved to be

the first sanatorium owned and operated by any railroad in the United States. Furthermore, it was, so far as I have been able to learn, the first sanatorium in this country ever built with a complete operating room set-up and equipped for the collapse treatment of pulmonary tuberculosis. From its inception, it has been devoted entirely to this form of treatment and from seventy to eighty percent of the patients are at all times under some form of collapse therapy—only the new arrivals or those in whom no form of collapse is suited are permitted to remain without some of these measures being used. In the ten years of its existence more than six hundred and fifty patients have been treated in its eighty-five patient beds. The patients are sent to this sanatorium from all points along the company's lines. Many of them are first sent into the company's general hospital in San Francisco, and filtered through there to this sana-

(Continued to Page 118)

Arizona Sanatoria



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Intestinal Tuberculosis

W. R. HEWITT, M.D.*

Tucson, Arizona

Tuberculosis of the intestine is either hypertrophic, which is primary; or ulcerative, which is secondary. This article is concerned with the latter, since it is the more important and common lesion. Ulcerative tuberculosis occurs almost always in the individual who suffers from active or healed tuberculosis of the lungs. The avenue of infection for the condition is, in a great majority, the alimentary tract. Rarely, blood stream invasion may occur, but the bowel infection commonly is the end result of swallowing tubercle bacilli laden sputum over an extended period of time. Healing also is slower until the passage of tubercle bacilli is stopped. Tubercle bacilli can be recovered from the stomachs of all who have a positive sputum. Pulmonary ulceration associated with the raising of considerable quantities of sputum makes more likely the presence of intestinal ulceration. Rubin¹ reports 569 autopsies on patients dying from pulmonary tuberculosis (obviously far-advanced cases) and one out of three had intestinal involvement. Laryngeal involvement is comparable to intestinal involvement in that it is evidence of far-advanced disease. Rubin found it in one of two in the same series. When trouble was present in the larynx, it was also present in the intestine in 90 per cent of cases.

The earliest site of infection is in the ileocecal region. Any other segment of the gastrointestinal tract may be involved including, occasionally, the stomach and duodenum. Involvement, except in the ileocecal region, is seldom found alone and when found in other segments the disease is apt to be extensive.

It is well recognized that tuberculosis has an affinity for lymphoid tissue. Such tissue is most abundantly present in the ileocecal region. The newest infections are found in Peyer patches and in the solitary lymph follicles. The mucosa over these foci becomes swollen and injected and later shallow ragged ulcers form. The submucosa, muscularis or mucosa may form the base of the ulcer.

Fortunately, ulceration is slow—giving time for reinforcing adhesions which help prevent perforation. Microscopically there is caseation, endothelial and lymphocytic cell infiltration and giant cell formation. The smaller arteries are thickened and their lumens narrowed, very often to obliteration. Probably, this explains the rather low incidence of blood loss and hemorrhage.

The question of whether intestinal tuberculosis is enterogenous or hematogenous is not entirely settled. It is practically certain that the former is the method, although experimental proof is difficult to produce. The mesenteric lymph nodes are always infected. Original lesions may become ulcerated or not, but lesions in the lymph nodes mean that lesions are present in the bowel wall. Healing and breaking down occur at the same time in the bowel. Cicatricial tissue is formed and narrowing occurs. Adhesions and bands from perforating lesions also contribute to obstructive pathology. Peritonitis is common in late disease and fistula formation follows surgical procedures.

Erickson² states, "The symptomatology of intestinal tuberculosis is most varied. It is impossible to make out any one diagnostic syndrome or any one sequence of symptoms, the various symptoms occur and follow each other in a manifold variety." Pain, the most common symptom is inconstant and is not proportional to the degree of involvement in the intestine. The pain complained of is usually present in the right lower or mid abdomen. It may be severe and cramplike, but most commonly is dull and aching or burning. Palpation over the diseased area often elicits pain when otherwise it is not noted. The finding of tenderness persistent in the same area in an individual with the pre-requisite pulmonary pathology, especially if the bowel is thickened, strongly suggests intestinal infection.

In the past, diarrhoea has been held to be an important symptom. It is now known to be present in only 30 per cent of cases. It is no more a true indication of ulceration than constipation is of absence of ulceration.

* Tucson Clinic, Tucson, Arizona.

An occasional loose stool or recurrent attacks of diarrhoea are signs of disease. Food allergies and functional disorders must be ruled out. Usually, when the disease has progressed to the point where diarrhoea is present continually, ulceration is extensive. Disturbance in bowel function coming repeatedly and becoming more frequent and more severe, or a change in bowel function from a previous rather constant status are suspicious signs of intestinal involvement.

Blood loss of macroscopic extent is infrequent and massive hemorrhage is seldom seen.

An irregular temperature is a feature of the disease while uncomplicated pulmonary disease gives a rather regular temperature curve. When intestinal ulceration is present, the highest temperature may be at 11 a. m., or the early morning subnormal may remain through the forenoon. There may be no fever for several days and then it may suddenly appear, particularly if the patient has eaten indiscreetly. Frequent bowel upsets accompanied by rise in temperature are significant. The temperature curve may be normal when ulceration is present.

Loss of weight correlates with anorexia and the resulting lowered food intake. Nutrition suffers in most cases, not only because of the lowered food intake but because of more imperfect absorption.

Gaseous eructation, distention after eating, nervous irritability, loss of appetite, nausea, vomiting and constipation are other symptoms found.

It is not often possible to diagnose intestinal tuberculosis on history and physical examination alone. Erickson³ found, on tabulating symptoms in negative cases and positive cases, that the same symptoms were present in both. In the positive cases, however, the incidence of an individual symptom, such as pain, was greater in the positive than in the negative cases. Symptomatology is helpful but not diagnostic.

Clinical laboratory methods are of practically no help.

Roentgenologic examination is indispensable in the diagnosis of tuberculosis of the intestine. It must be depended on largely and should be done more frequently on cases which have had positive sputum over a period of months.

The diagnosis by x-ray depends not only on filling defects, but also on changes in motility and on spasticity. Visualization should be done and x-ray films should be made from the 6th or 7th hour on through the 9th hour. A twenty-four hour film should also be made. Ordinarily, the colon enema is desirable, but is not always essential for the diagnosis. It offers the best method for observing the terminal ileum and ileocecal region by retrograde filling. Such filling however does not always occur when barium enema is given.

Dilatation and segmentation are signs of small intestinal involvement. From the 5th to the 9th hour, after giving barium by mouth, it is passing through the ileocecal area and into the right colon. Fluoroscopic examination helps in finding fixation, thickening and tenderness. A film made after expulsion of the enema is of great value. Boles, and Gershon-Cohen⁴ favor the double contrast enema which is accomplished by insufflating air through the rectum into the bowel which contains barium for double contrast.

Filling defects found may be due to scarring or to spasm at the site of the mucosal change. As the barium passes through it is retarded proximal to the lesion and hurries through the involved part. The involved part is poorly filled. Ileal stasis with little or no barium having entered the cecum at six hours, means ileocecal or cecal involvement. Barium remaining in the terminal ileum after nine hours also indicates disease in the same area. The cecum should remain well filled from the 6th through the 10th or 12th hours. If barium remains in the ileum, the ascending colon is well filled and the cecum is poorly filled, disease is present in the cecum.

Brown and Sampson⁵ have studied 5542 patients with x-ray since 1918 to determine the presence or absence of intestinal tuberculosis. There were 1465 positive cases and 4077 negative cases. Of the negative group, 88 went to autopsy and in 87 no intestinal tuberculosis was found. This is indication of the dependability of the method.

Prophylactic treatment is the first line of defense in intestinal tuberculosis. This means in simple terms, well planned active treatment of the lung condition in order that the positive sputum may be stopped. Patients should no longer be allowed to go along with

open cavities, nor with disease that is not steadily improving. Modern methods of chest surgery, which include so many ways and combinations of ways of controlling the chest disease should be stringently applied in order to prevent the spread of tuberculosis to the intestine and other organs.

The patient should be at bed rest.

Bonafe⁶ states, "the dyspeptic tubercular is a candidate already designated for intestinal tuberculosis." With this in mind, the importance of maintaining good digestive function and keeping the patient in the best state of nutrition is seen. Optimum nutrition is not synonymous with optimum weight, as has so often been considered. It is a more specific state and implies that the individual is getting and absorbing all food elements which go to make up a healthy body and thereby give increased resistance to disease. Optimum nutrition is gained by supplying all the food elements including vitamins and minerals and creating the best probability of their absorption.

McCarrison⁷ found that birds, fed on a diet deficient in Vitamin B₁, developed atrophic changes in the upper intestine. A Vitamin B₁ deficiency, in all probability, almost always coexists with deficiency of the other B factors. Smith and McConkey⁸ fed tuberculous sputum to guinea pigs whose diet was deficient in Vitamin C and 32 of 37 developed intestinal ulceration. In the control group, only 11 of 35 developed intestinal ulceration. The body demand for Vitamin C in any infectious disease is great.

The diet should be bland and of low residue to a degree depending on the comfort of the abdomen. Highly restricted diets should not be long adhered to, particularly without the addition of supplementary Vitamins and Minerals. The so-called protective foods should be included. "They forestall deficiency conditions and diminish the incidence, the severity and the duration of some diseases other than those primarily nutritional."⁹

Minerals such as calcium, iron, iodine, phosphorus and manganese are intimately connected with nutrition. Iron should always be supplied when blood findings are below normal. It is best administered by mouth if there is not intolerance for it. If there is intolerance it may best be given as Iron

Cacodylate intravenously. Calcium gluconate is preferable when parenteral calcium is necessary. Fifteen grains intravenously or intramuscularly, given daily or twice weekly not only supplies calcium, but helps greatly to control nausea and diarrhoea. Prolonged diarrhoea is usually accompanied by calcium deficiency. Bismuth Subcarbonate, or a powder containing equal parts of Bismuth Subcarbonate, Calcium Carbonate and Calcium Phosphate in doses of from one to six drams a day are helpful in controlling diarrhoea. Powdered Opium or deodorized tincture of opium should be used for pain and looseness. Habituation to these has not been found to be a problem even when taken over long periods.

Constipation should be managed in the simplest way. Laxatives are to be avoided. Mineral oil should not be used steadily. When constipation is present, the use of oil retention enemas and one of the newer mucilaginous preparations or flaked agar by mouth are the most satisfactory.

Artificial heliotherapy is essential in the treatment of tuberculosis of the intestine. It is preferable to sunlight because dosage is more accurately measured and because it supplies more of the beneficial rays and because it does not harm the lung disease as sunshine often does. The patient should be exposed to a Mercury Vapor Ultraviolet Lamp over the whole body, except for the chest and eyes which should be covered. In some instances, the chest is not covered, but it is probably safer to do so.

The lamp is focused over the abdomen. Exposure is begun with one-half minute to back and to front daily with the burner placed at a thirty-six inch distance. The time is increased by one-half minute daily, or according to the individual tolerance. Burning is to be carefully avoided. When the exposure reaches thirty minutes to back and to front the lamp may be gradually lowered to thirty inches. Irradiation is continued this way over one to two years, depending on the progress.

Other methods of treatment, such as pneumoperitoneum and x-ray have not proven effective in ulcerative disease of the bowel. The latter is effective in marked glandular infection and the former, in some as yet unexplained way, controls symptoms

without much effect on the progress of the disease.

The prognosis in intestinal tuberculosis is most favorable provided the disease in the lung can be controlled and the comparatively simple method of treatment herein indicated is well carried out. 110 S. Scott Street.

References

- 1 Rubin, E. H.: "Laryngeal and Intestinal Tuberculosis; Correlative Study," *Am. J. Med. Sciences*, 191: 663-674, May 1931.
- 2 Erickson, R. J. (as quoted by Brown and Sampson): *Intestinal Tuberculosis*, ed. 2, Lea and

- Febiger, 1930, p. 167.
- 3 Erickson, R. J. (as quoted by Brown and Sampson): *Intestinal Tuberculosis*, ed. 2, Lea and Febiger, 1930, p. 167.
- 4 Boles, R. S. and Gershon-Cohen, J.: "Intestinal Tuberculosis," *J.A.M.A.*, 103: 1841-1845, Dec. 15, 1934.
- 5 Brown, L. and Sampson, H. L.: ed. 2, Lea and Febiger, 1930, p. 249.
- 6 Bonafe: "Prohylaxis," *Rev. Med. Franc.*, 18: 339-340, April, 1937.
- 7 McCarrison, R.: "Pathogenesis of Deficiency Disease," *Ind. J. Med. Rev.*, Vol. I 550, 1919.
- 8 Smith, O. T. and McConkey, M.: "Experimental Intestinal Tuberculosis in the Guinea Pig," *Tran. Natl. Tuberc. Ass'n.*, 25: 213, 1929.
- 9 Heise, Fred H.: *Am. Rev. Tuberc.*, Vol. XLIII, No. 2, p. 253.

HIRAM W. FENNER, M.D.

(Continued from page 104)

percent of all tuberculosis cases under his care, and was in charge of St. Mary's Sanatorium. I found him well informed and much interested in the then comparatively new rest treatment of this disease. So much interested did he have in this disease and its modern treatment that he prevailed upon the Sisters of St. Mary's Hospital to built a Sanatorium of the open air type, and this building is still in use exclusively for this purpose. (The building was completed in the year 1900).

Doctor Fenner had learned from his experiences that in addition to rest and good food that Cod Liver Oil "did something" that could not be explained by its fat content. Another thing he had learned and practiced, but couldn't explain, was that green vegetables, fruits and nuts had a value not explained by their caloric value. So much did he value vegetable juices that he set up a vegetable presser for the extraction of the juice from leafy vegetables, carrots, beets, et cetera, which he insisted his patients should use regularly. When asked why he stressed the use of such foods, he couldn't explain except on the basis of his experience. We know now he had learned that such foods had an unexplained value, and that he was unconsciously using vitamins, with much benefit to his patients, before he knew their name or number.

Doctor Fenner was enthused over the first article he had read on artificial pneumothorax (an article by Dr. Mary Lapham of Asheville, North Carolina, in 1914). After urging one of his conferees to visit Dr. Lapham and learned the technique (which was done the same summer), he readily submitted his patients to this treatment. The technique at that time was to use nitrogen gas. Pneumothorax called for an x-Ray machine (which was not available in Tucson at that time) to check and determine results of the treatment, and he lost no time in convincing the Mother Superior of St. Mary's Hospital that she should provide space for the new x-Ray equipment, and to have one of the Sisters learn x-Ray technique so the set-up would be complete.

When this arrangement was completed and Doctor Fenner was able to visualize the workings of artificial pneumothorax, his enthusiasm was unbounded. Since he was a man that reveled in facts he delighted in seeing cavities close and his patients grow better and some of them go on to cure. His work in tuberculosis was like all his medical work—based on good common sense, and the best teaching of his day. His patients were handled kindly but firmly, and those who would not conform to his ideas of management were dismissed and advised to return to their homes farther east. It seems he had also learned that no

climate, however good, could cure a patient who would not conform to the "rules of the game." He was most emphatic about the detrimental effect of the sun's rays in pulmonary lesions and had some definite ideas about the "whys" of this fact. His knowledge of tuberculosis was profound, his diagnostic ability was good, and his methods of treatment conformed to the best teachings of the times plus some original observation due to his rational ways of thinking.

—Charles A. Thomas, M.D.

W. WARNER WATKINS, M.D.

(Continued from page 105)

Ray Society of which he was president in 1921, to the American Roentgen Ray Society of which he was secretary in 1922-23-24, and the American Medical Association. He is a Fellow of the American College of Physicians, and a Fellow of the American Society for the Advancement of Science. He is a charter member of the American College of Radiology and a member of the Radiological Society of North America, and the Roentgen Society of London. He was secretary and referee in X-ray for the Medical Advisory Board number two for Arizona.

SOUTHERN PACIFIC SANATORIUM

(Continued from page 113)

torium after the diagnosis of tuberculosis has been verified or made.

The rules of the company hospital department provides at least one year's hospitalization and treatment for each patient. This period is often prolonged if circumstances justify.

Dr. C. A. Walker, who succeeded Dr. Coffey two and one-half years ago as Southern Pacific Chief Surgeon, is now equally as much interested as was Dr. Coffey.

This institution, which is modern in every respect, offers an ideal set-up for the treatment of this type of disease.

Deductions from every employee's monthly check while working, enables the hospital department to meet all the needs of the sick patients, with no cost to the patient while he is sick.

The medical services, including dentistry, are rendered by the personnel of the Thomas-Davis Clinic, Tucson.

—Chas. A. Thomas, M.D.

The Tuberculosis Campaign in Arizona

(Continued from page 103)

ago. It was probably this as well as the sympathies of the more fortunate for the tuberculous patient unable to care for himself, that prompted the founding of charitable and semi-charitable institutions for the treatment of tuberculosis. The first of these was established in 1905 and is still doing a humanitarian work, receiving its support entirely from volunteer funds. Several other like organizations have weathered the years of good times and bad and continue to take their place in this field of endeavor.

Soon the good example set by these private sanatoria was followed by action on the part of various counties, especially those of the greatest population, and county hospitals, as they were called, were built chiefly to care for the many advanced cases who had established residence in the state and, unable to care for themselves, needed to be isolated for the protection of the public as well as for their own good. Throughout the past thirty years, many improvements have been made in the structure and equipment of these sanatoria. Yet, it can not be said that they meet the need, for migration of the sick to Arizona continues and will continue as long as there are tuberculosis cases in the nation who seek to escape the rigors of the long cold winters of so many American cities.

The best of these public institutions under the control of the state and counties is the Welfare Sanatorium at Tempe which is supported by State and Federal funds and is intended for the care of early or curable cases only. The bed capacity of 100 in this sanatorium is totally inadequate for the number of such cases needing to be hospitalized. Two splendid examples of what can be done for the tuberculous when properly housed and treated are demonstrated in the U. S. Veterans Hospitals located at Prescott and Tucson. These modern structures, well equipped and staffed, have a combined bed capacity of 426.

Among those coming to Arizona thirty five or more years ago were many physicians, some of them tuberculous themselves. Among these were several capable men who, specializing in tuberculosis, rendered a great service in caring for the tuberculous and restoring them to health. Some of these physicians established private sanatoria. Others assisted by building up the standards of nursing homes or boarding homes where so many cases in Arizona are housed while remaining under the treatment of their physicians.

State and County Health officers of Arizona claim that tuberculosis and its control is one of the major problems confronting them. As the County Health Units have increased in number and in staff members, more attention has been

given to supervising the tuberculous and in detecting the sources of infection. The tuberculin testing and x-raying program has been intensified and has proven valuable. In 1936 the Healthmobile was provided through the cooperation of the American Legion with the State Board of Health. This mobile testing and x-raying unit covers the state and tests the pupils and teachers in the schools and colleges. A motion picture projector accompanies the unit and shows the tuberculosis films produced by our National Tuberculosis Association. A staff of four is in charge of the unit. That this work has the wholehearted support of the public is evidenced by the demand for the unit. Further cooperation is given this activity through the services of a full time director of health education on the staff of the State Board of Health. This service is booked up for months ahead and provides lectures on tuberculosis and other public health subjects and the showing of sound motion pictures, including those on tuberculosis. Thousands of laymen are annually reached in this service in advance of the arrival of the Healthmobile.

Arizona's high tuberculosis death rate gives a false impression of the state's efforts to combat the disease. Before any great reduction in this figure can be accomplished we must have national cooperation in preventing and discouraging the practice of referring persons suffering from tuberculosis to Arizona for climatic reasons unless they are able to maintain a standard of living necessary for the maintenance of health and for securing the medical attention essential to recovery. The migratory tuberculosis problem in Arizona is one which still creates a burden upon volunteer and public agencies far out of proportion to means available for coping with it.

The Arizona Anti-Tuberculosis Association, since 1915, has been active in promoting a work of education, legislation, public health nursing and school nursing programs, cooperating in supporting of the tuberculin testing and x-raying programs, and over the state ever striving to build up a work of prevention of tuberculosis. The Association maintains its central office in Phoenix, the capitol of the State, and has 46 County and City Committees all working in a cooperative and common program.

As the tuberculosis problem over the nation decreases, so will it doubtless diminish in Arizona. In the meantime Arizona has much to offer the health seeker who is prepared to maintain the same standards of living and secure the same good medical care he or she would have in the home state.

* Executive Secretary Arizona Anti-Tuberculosis Association.

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A Brief History of the Tuberculosis
Movement in Oklahoma

The tuberculosis movement in Oklahoma was pioneered by Dr. Lewis J. Moorman, Oklahoma City, who in 1914 established the first tuberculosis sanatorium in the state. It was a privately owned and operated institution and to this day remains so. It is the only privately owned tuberculosis sanatorium in the state.

The United States Department of the Interior, Office of Indian Affairs recognized the need for hospitalizing the tuberculous Indians and in 1916 the Kiowa Indian Hospital at Lawton and the Choctaw-Chickasaw Indian Hospital at Talihina were opened for tuberculous Indians. Since then, many new additions were made and in 1925 the Shawnee Indian Sanatorium at Shawnee was opened.

The first state sanatorium was opened at Talihina in Eastern Oklahoma in 1921; and in 1922 it was deemed advisable to build a state sanatorium in the western part of the state. This sanatorium is located at Clinton. During that same year, the Soldiers Tubercular Sanatorium was opened at Sulphur.

The first Executive Secretary of the Oklahoma Tuberculosis Association was Mr. Jules Schevitz. He was succeeded by Mr. R. H. Hickson, and in 1927 Dr. Carl Puckett became the Executive Secretary and Managing Director of the Oklahoma Tuberculosis and Health Association. He still serves in that capacity.

The State Tuberculosis Association and its affiliated local societies and committees have been interested in the tuberculin testing of school children. To date, more than 100,000 children in the grade schools and high schools have been tuberculin tested. The State Association is supplying tuberculin free of charge to physicians in the state and is encouraging them to carry on this tuberculin testing program.

Dr. Robert M. Shepard of Tulsa was one of the

early physicians who became interested in tuberculosis. He was a visiting physician at the Indian Hospital at Talihina and later he became the superintendent of the State Sanatorium at Talihina. He resigned that position to enter the private practice of medicine at Tulsa, and he has since resided at Tulsa. It has been largely through Dr. Shepard's efforts that Tuberculosis Committees were organized in the County Medical Societies throughout the State of Oklahoma and a Symposium on Tuberculosis made possible at the last meeting of the Oklahoma State Medical Society.

The State Board of Health under the direction of Dr. G. F. Mathews, State Health Commissioner, has engaged Dr. R. H. Gingles, as the Director of Tuberculosis Control and he is in charge of two mobile x-ray units which tour the state and cooperate with physicians throughout the state for the finding of cases of tuberculosis.

The immediate program of the Oklahoma Tuberculosis and Health Association is the sponsoring of a publicity campaign to obtain more beds for Negro patients. The deathrate among the Negro tuberculous is three times that of the white population in the state, and yet, there are four times as many beds available for whites as there are for Negroes.

Dr. Puckett, who as the Managing Director of the Oklahoma Tuberculosis and Health Association, is in charge of this program, was formerly State Health Commissioner of Oklahoma and before that he was in the private practice of medicine at Pryor, Oklahoma.

Dr. Forrest P. Baker and Dr. Richard M. Burke, superintendents of the two state sanatoria, have been actively identified with the progress made by the State of Oklahoma in its fight against tuberculosis.

Tuberculosis Pioneers in Oklahoma

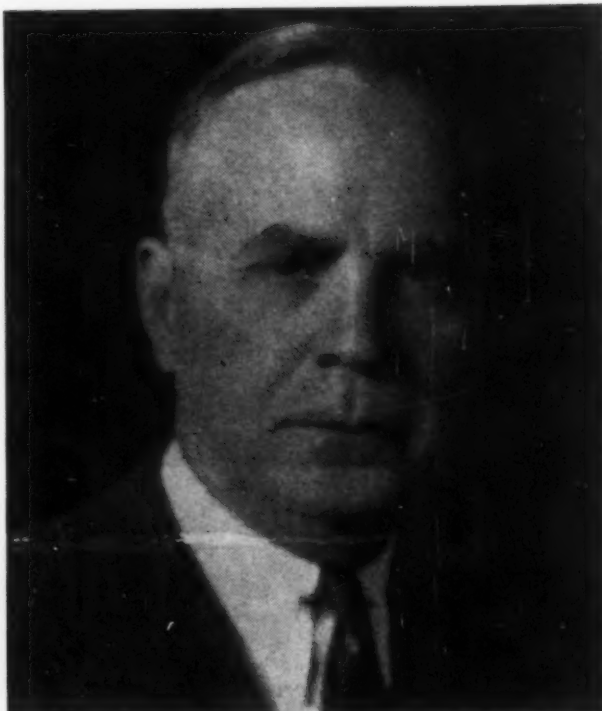


ROBERT MELVIN SHEPARD, M.D.

Dr. Robert Melvin Shepard was born in Kemper County, Mississippi, June 9, 1889. He was graduated from the University of Tennessee School of Medicine in 1913. He interned in Nassau County Hospital, New York, and Kingston Avenue Hospital, Brooklyn, New York.

He moved to Oklahoma in 1915. Dr. Shepard served in World War No. 1, as medical officer with about two months service overseas. After being released from army service in 1918, he returned to Oklahoma and did general practice until the Oklahoma State Tuberculosis Sanatorium at Talihina was built and opened in 1922. He became superintendent and medical director of that institution and served in that position through the year 1927. He went to Paterson, New Jersey, equipped and opened the Valley View Sanatorium and as superintendent and medical director. Because of ill health, he resigned the latter part of 1929 and located at Tulsa, Oklahoma.

Since 1922, his practice has been confined to diseases of the lungs. Since coming to Tulsa he has been president of the Tulsa County Medical Society, served for two terms as president of the Oklahoma Tuberculosis and Health Association, and representative director of the National Tuberculosis Association. During this time Dr. Shepard served as examining physician and director of the Tulsa tuberculosis association. Dr. Shepard is on the regular staff of Hillcrest Memorial Hospital and consultant to St. Johns Hospital. He is the Governor of the American College of Chest Physicians for Oklahoma, and the chairman of the Oklahoma State Section of this Southwestern States Issue of *Diseases of the Chest*.



LEWIS JEFFERSON MOORMAN, M.D.

Dr. Lewis J. Moorman entered medical school with a B. S. degree and graduated in medicine from the University of Louisville, Kentucky, in 1901. In 1903, he went to New York City for postgraduate work and in 1906, he went to the University of Virginia for graduate work in laboratory and to review medicine. In 1909, he went to Europe for postgraduate work and spent seven months in the University of Vienna, studying medicine and pathology, paying special attention to pathology of the lungs and the respiratory system. He visited hospitals in London and Liverpool while in Europe.

Dr. Moorman also attended clinics all over the United States and took some special postgraduate work at Saranac Lake and Boston. He has been in demand at medical meetings as a speaker and was the dean of the Medical School of the University of Oklahoma for three years. Prior to that time, he was clinical professor of medicine at the Medical School and taught physical diagnosis for twenty years. Dr. Moorman is the founder and medical director of the Farm Sanatorium, a private sanatorium at Oklahoma City.

Dr. Moorman is a member of his county and state medical societies, the American Medical Association, the American Clinical and Climatological Association, the Oklahoma City Academy of Medicine, the Oklahoma State Tuberculosis Association, and the National Tuberculosis Association. He is a Fellow of the American College of Physicians, the American College of Chest Physicians, and a Certificate of the American Board of Internal Medicine. He served as President of the Southern Medical Association in 1932; Vice-President of the National Tuberculosis Association in 1932; President of the Southern Tuberculosis Association in 1935 and 1936; and as President of the Oklahoma City Tuberculosis Society. Dr. Moorman is now serving as the President of the American Trudeau Society, and is a member of the Editorial of the American Review of Tuberculosis and of the Board of Regents of the American College of Chest Physicians.

In addition to his numerous writings which have been published in the leading medical journals; he has recently written a book entitled: "Tuberculosis and Genius," published by the University of Chicago Press.

Oklahoma Sanatoria



EASTERN OKLAHOMA STATE SANATORIUM TALIHINA, OKLAHOMA

Eastern Oklahoma State Sanatorium was established in March, 1921. Patients from only the Eastern one-half of Oklahoma are admitted to the institution, which is located three miles from the town of Talihina in the edge of Latimer County in the Winding Stair Mountains.

Since that time nearly \$1,000,000.00 has been spent on buildings and equipment and the bed capacity is now 370. There are four major patient buildings of brick structure which are from two to three stories high. The institution has its own laundry, dairy, power plant and utilities, all modern and up to date.

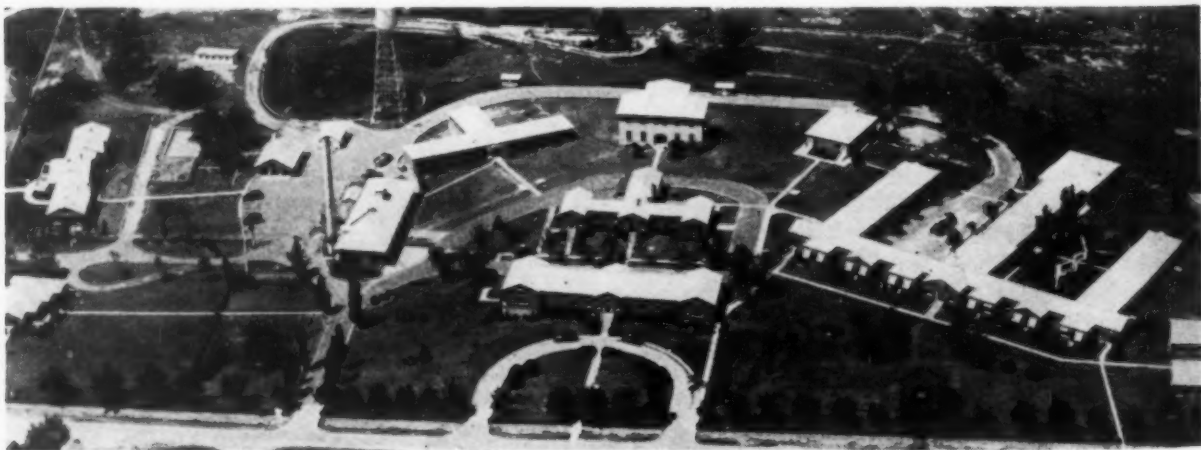
There have been only three Superintendents of the sanatorium since it was established: D. Long, M.D.,

1921-1922, R. M. Shepard, M.D., now of Tulsa, Oklahoma, 1922-1928 and F. P. Baker, M.D., the present superintendent who took office in 1928.

The institution now has beside its superintendent, three resident physicians and four registered nurses, which comprise the staff. The total number of employees is about 125.

All modern forms of collapse therapy are given at the sanatorium, and much major chest surgery is performed, including thoracoplasty and pneumolysis.

The institution is under the control of the State Board of Public Affairs and all funds are appropriated by the State Legislature.



SOLDIERS TUBERCULOSIS SANATORIUM SULPHUR, OKLAHOMA

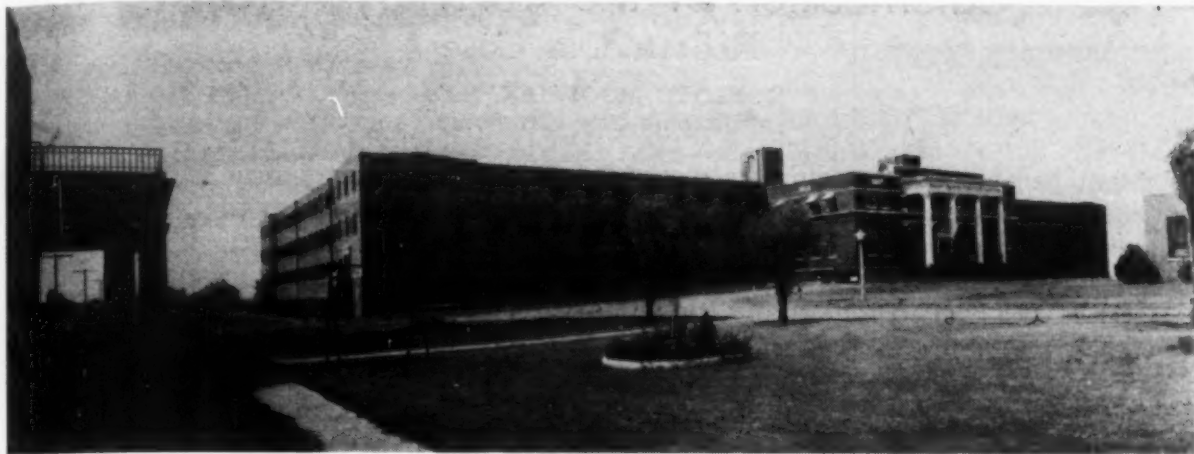
The Soldiers Tubercular Sanatorium, with an initial bed capacity of 60, was built in 1922 under the direction of the Soldiers Relief Commission of the State of Oklahoma, for hospitalization of war veterans. It was formally dedicated August 26, 1922 under the auspices of the American Legion of Oklahoma. Later additions have increased the adult bed capacity to 105 and provided a modern surgical unit. There has also been added a Childrens' Preventorium with a capacity of 28 beds for hospitalization of children of

World War veterans.

The resident medical staff consists of superintendent, Dr. F. E. Sadler; chest specialist, Dr. J. A. Wrenn; ward physician, Dr. F. W. Prather; surgeon, and Dr. W. D. DeLay. A part-time dentist is also employed.

The governing board of the institution is the Soldiers Relief Commission of the State of Oklahoma. Admission to the institution is limited to war veterans and their children who are legal residents of Oklahoma.

Oklahoma Sanatoria



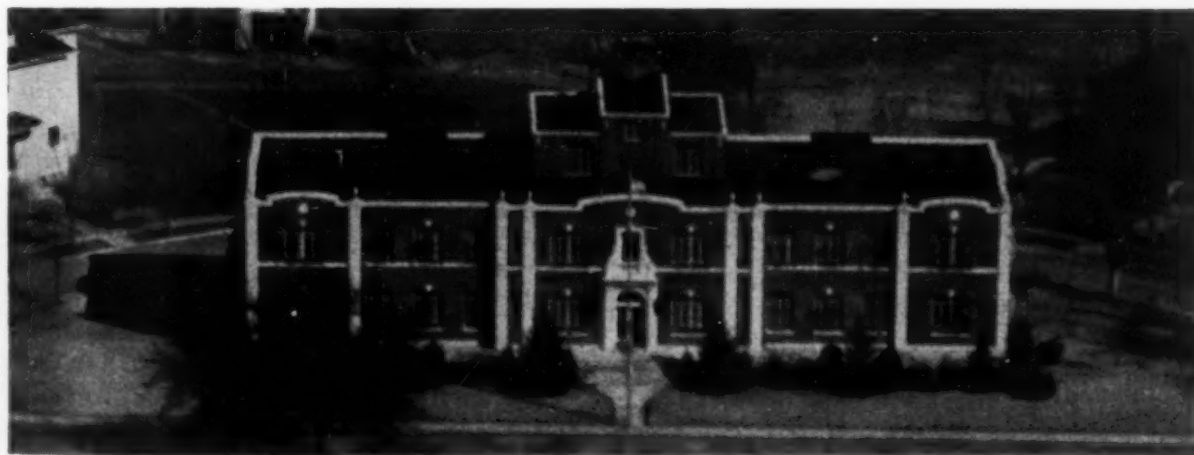
WESTERN OKLAHOMA STATE SANATORIUM CLINTON, OKLAHOMA

The Western Oklahoma Tuberculosis Sanatorium is located one mile south of Clinton on a site occupying 61 acres. Its elevation is 1625 feet. 5600 patients have been admitted since its opening in 1921.

The original bed capacity was 100. At first the patients were housed in wooden pavillions. In 1925, a building for negro patients was erected. From 1930 to 1936 new ward buildings were constructed, replacing the wooden structures with a unified hospital type of sanatorium building. A nurses' home, an administration building and auditorium were built in 1932. A new power house and laundry was finished in 1940

at a cost of \$84,000. The institution has its own dairy herd and pasteurizing plant. The present bed capacity is 300 which includes 52 beds for negroes. Complete facilities for thoracic surgery and allied procedures are provided. A vocational rehabilitation program is being carried on. Internes from the University Hospital, Oklahoma City, are trained here.

An out-patient department is maintained including a pneumothorax clinic. Through this department a special effort is made to stimulate interest of the general practitioner in tuberculosis. Richard M. Burke, M.D., is superintendent and medical director.



SHAWNEE SANATORIUM SHAWNEE, OKLAHOMA

The Shawnee Sanatorium is located approximately 2½ miles south of the City of Shawnee.

In 1925, the Department of the Interior, recognizing the need of a sanatorium for the treatment of Indians suffering from tuberculosis, utilized the old school buildings on the grounds for this purpose.

In 1930, an appropriation for the first modern building was obtained, and a modern Infirmary Building for bed cases was completed in 1931. From time to time, new buildings have been constructed and old ones remodelled. Construction will soon commence on two additional modern buildings, one of which will be of a thirty-bed capacity and designed to handle semi-ambulant patients; the other will be a fire-proof

laboratory and auditorium.

The bed capacity of Shawnee Sanatorium is 150 patients. Indians from the entire United States are admitted for the treatment of all forms of tuberculosis. The institution is equipped for chest surgery and other forms of collapse therapy. Excellent laboratory and x-ray facilities are provided, under the direction of a competent technician.

The medical staff consists of: a full time federal medical officer, who is also the superintendent; a contract surgeon, and eight consultants, each of whom is a specialist in his line.

The Shawnee Sanatorium is under the jurisdiction of the Department of the Interior.

Calcification of the Coronary Artery

Report of a Case

J. FLOYD MOORMAN, M.D.
Oklahoma City, Oklahoma

It might be apropos to begin this discussion with a brief review of the anatomy of the coronary arteries as described by Smith.¹ The blood supply to the heart is provided by two arteries, the right coronary and the left coronary.

The right coronary artery arises from the anterior sinus of Vansalva. It proceeds to the right and follows the groove between the right auricle and right ventricle to the posterior aspect of the heart, usually extending beyond the interventricular septum and terminating in descending branches to the mesial posterior wall of the left ventricle. Descending branches are given off to the anterior, lateral and posterior walls of the right ventricle, and to a posterior segment of the interventricular septum, in addition to those mentioned to the posterior wall of the left ventricle. Important branches go to the auricles. This artery is then responsible for the major portion of the blood supply to the right ventricle, a posterior section of the interventricular septum, and to an area of varying extent of the posterior wall of the left ventricle adjoining the interventricular septum. It also contributes to the arterial supply of the auricles, particularly the right, and to the conduction system.

The left coronary arises from the left anterior sinus of Vansalva. It passes downward and to the left, behind the root of the pulmonary artery, and soon divides into two main branches, the circumflex and the anterior descending branch.

The anterior descending branch proceeds downward along the anterior aspect of the interventricular septum around the apex and terminates in twigs which are in close proximity to the terminal ramification of the descending interventricular branch from the right coronary artery. It gives off lateral branches to the anterior and apical region of the left ventricle and to a small adjoining section of the right ventricle. In addition, numerous branches penetrate the interventricular septum, almost at a right angle.

The circumflex branch of the left coronary

artery follows the groove between the left auricle and ventricle to the posterior aspect of the left ventricle, where it terminates in descending branches. In some instances, it may continue even beyond the interventricular septum posteriorly. Along the course of this artery, branches are given off to the auricles and to the anterior, lateral and posterior wall of the left ventricle. The left coronary artery, through its two main branches, is, therefore, responsible for the arterial supply to the greater portion of the interventricular septum, to a small area of the right ventricle adjoining the apex, and to the left ventricle, except possibly for a section of the posterior wall mentioned in connection with the right coronary artery. It will thus be seen that while the right coronary artery ordinarily crosses the interventricular septum posteriorly and takes in a section of the left ventricle, the left coronary artery through the anterior descending branch, extends over on the anterior wall of the right ventricle.

The sinus node of the conduction system is supplied by the ramus ostei cavae superior, which is ordinarily one of the early branches of the right coronary artery, but which may originate from the circumflex branch of the left coronary. The above artery anastomoses freely with posterior auricular branches from both the right and left coronary arteries. The auriculo-ventricular node and the bundle of His have a special blood supply through the rami septi fibrosi, arising from the right coronary artery near the posterior interventricular septum. The rami septi fibrosi likewise have free anastomosis.

The right limb of bundle apparently has a fairly definite blood supply through the early septal branches of the left coronary artery. The left limb is different in that it soon divides and spreads out under the endocardium of the left side of the interventricular septum and probably receives blood from a number of the numerous septal branches.

Clinical and experimental studies have demonstrated that there is often an exten-

sive anastomosis between the right and left coronary arteries. This anastomosis exists chiefly between the smaller arterioles and probably in the capillary bed. In the dog, the extent to which one artery or branch may take over the territory of another, varies considerably from animal to animal, according to Smith, who also states that, no doubt the same is true in man. At times, the heart is capable of withstanding even extensive interference of the blood supply through the development of an effective collateral circulation. Instances are not infrequently encountered at necropsy in which the heart has recovered in a surprising fashion from the occlusion of one of the main branches of the coronary arteries. Smith observed a case in which the descending branch of the left coronary artery was ligated in the repair of a stab wound of the heart, and following recovery from the operation, there was no apparent impairment of cardiac function. Wearn² reported two cases in which both the right and left coronary arteries were occluded. He justly concludes that the Thebesian vessels contributed to the blood supply of the left ventricle, but there was no doubt an abundant collateral circulation.

It is interesting to note that as far back as 1912, Herrick,³ one of the first to give a classic description of obstruction of the coronary arteries, made the following statement: "There are reasons for believing that even large branches of the coronary arteries may be occluded—at times acutely occluded—without resulting death, at least without death in the immediate future. Even the main trunk may at times be obstructed and the patient live.

"The influence of the vessels of Thebesius is also not to be overlooked in this connection: compensatory circulation through these accessory channels may be of considerable importance in nourishing areas of heart muscle poorly supplied by sclerotic or obstructed arteries."

Pericardial calcification has been demonstrated roentgenographically in living patients by many authors. Calcification in the myocardium, in cardiac aneurysms, in cardiac thromboses and in tumors has been shown in post mortem specimens.

Wosika and Sosman⁴ state that in reviewing the various types of cardiac calcification

that have been shown roentgenographically, there is no record to their knowledge of calcified coronary arteries having been demonstrated in the living subject. They present three cases in which calcified coronary arteries have been shown during life. One of the cases came to autopsy and the pathologic examination confirmed their fluoroscopic and x-ray findings. Two of their patients were 67 years of age, and one was 60. All complained of substernal pain.

Case Report

J. W., a fireman, age 51, first came to my office October 1, 1936, complaining of intermittent precordial pain, of about three years duration. The pain had become more constant and severe during the last year, and he described it as dull and aching in character. The pain did not radiate at that time. The remainder of the history was essentially negative.

Physical examination revealed a well developed, fairly well nourished male. Weight 128½ lbs, temperature 98.2°, pulse 88, respiration 20, blood pressure 130/90. The tonsils were missing, there was a McBurney scar on the abdomen. Examination of the heart and lungs was negative to inspection, palpation, percussion and auscultation. The response to exercise was normal.

At fluoroscopy the heart was found to be normal in size and shape, but extending along its left border there was a dark line about 2½ inches in length, presenting the characteristics of calcification which moved with systole. We thought perhaps it was calcification in the pericardium, although its position, its contour and the fact that it moved with systole led me to feel that it might be due to calcification of the left coronary artery.

Stereoscopic x-ray was made October 1, 1936 and another April 5, 1938 showing the shadow to be following the course corresponding to a branch of the left coronary. No noticeable change in the size, shape and contour of the calcified line occurred during the interval between the two x-rays. The plates were seen by Dr. Samuel A. Levine, who thought that the shadow was due to calcification in the left coronary artery. An electrocardiogram made November 5, 1936, was interpreted as follows: "No definite

E.K.G. evidence of coronary disease. "T" Lead 1, is of low amplitude and in this case probably signifies damage to the anterior coronary artery. This low "T" wave however, appears occasionally to be without significance."

This man has continued with his work and comes in at intervals for re-examination. At fluoroscopy the calcified area does not seem to have progressed. The last examination was December 5, 1940. He stated that he was feeling good and had not recently experienced any precordial pain. His temperature was 98.6°, pulse 88, blood pressure 125/80, weight 138 lbs.

His symptoms are relieved by one of the barbitol derivatives which he takes only occasionally.

I advised against heavy lifting and over-exertion. Otherwise his activities have not been curtailed. 1200 N. Walker Street.

References

- 1 Smith, Fred M.: *Cyclopedia of Medicine*, Vol. 111, 340, F. A. Davis Co., Phila.
- 2 Wearn, J. T.: *New England J. Med.*, 198: 726, May 24, 1928.
- 3 Herrick, J. B.: "Clinical Features of Sudden Obstruction of the Coronary Arteries," *Jour. A.M.A.*, 1912, 59, 2015.
- 4 Wosika and Sosman: "The Roentgen Demonstration of Calcified Coronary Arteries in Living Subjects," *Jour. A.M.A.*, 102, 591 (Feb. 24) 1934.

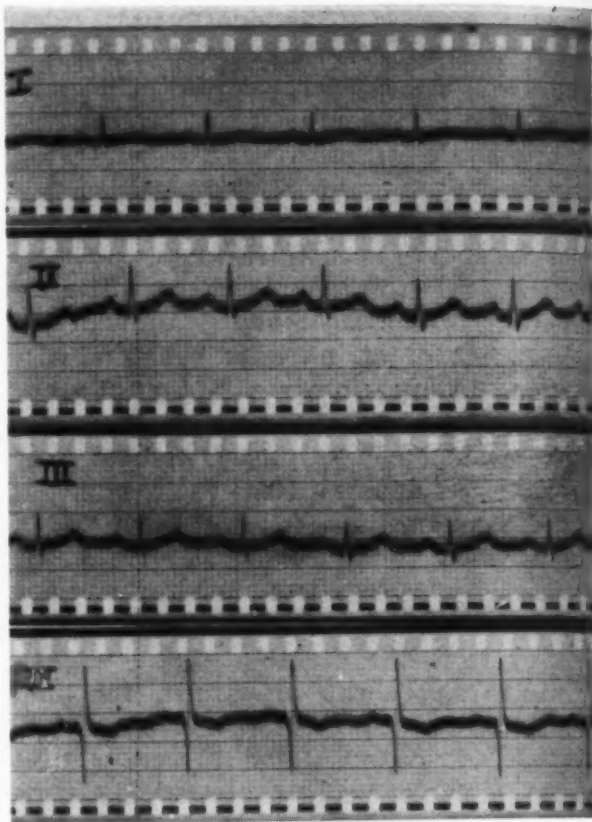


FIGURE II
Electrocardiogram made November 5, 1936.

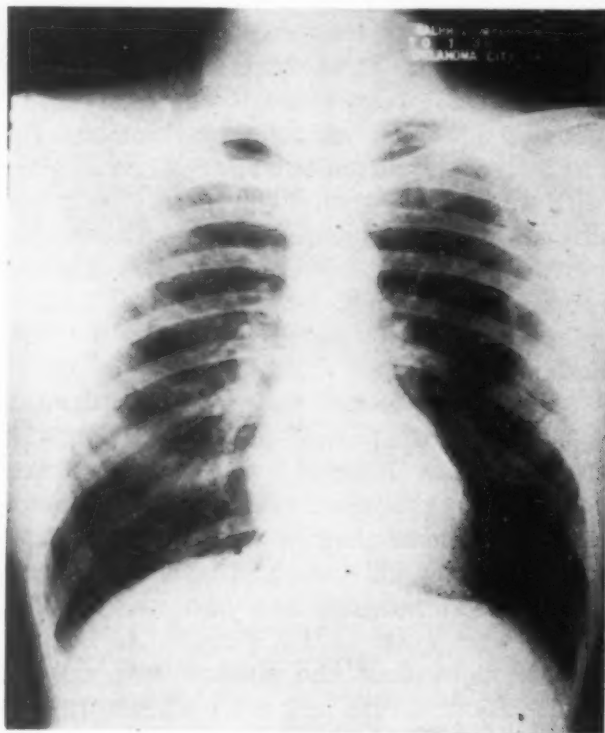


FIGURE I
X-ray, October 1, 1936.

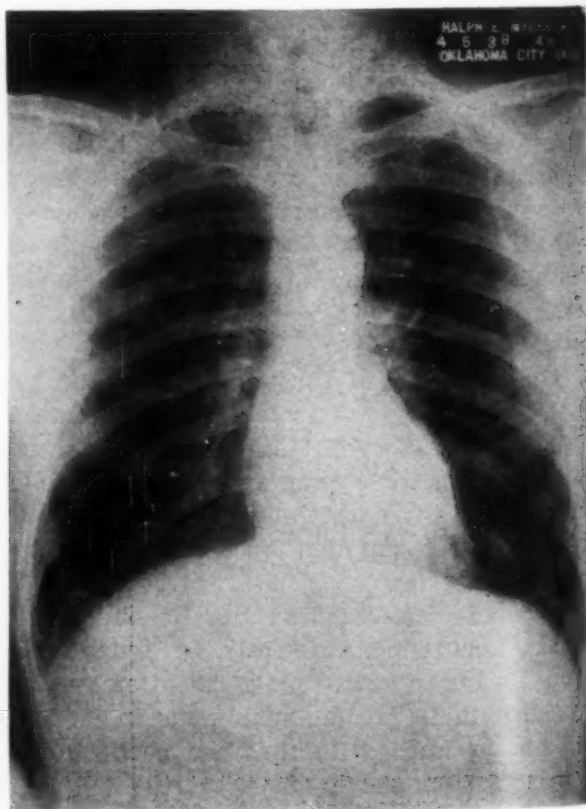


FIGURE III
X-ray, April 5, 1938.

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A Brief History of Organized Efforts Against
Tuberculosis in the State of Texas

It is the opinion of the writer that there was no organized anti-tuberculosis work in this state prior to 1908, at which time Dr. W. M. Brumby the then State Health Officer of Texas, associated himself with a group of Austin citizens in the incorporation of the Texas Anti-Tuberculosis Association. With him as incorporators were Drs. L. B. Bibb and J. M. Loving, of Austin.

The purpose expressed in the Charter of the Association included the dissemination of knowledge among the non-professional public of the causes, treatment and prevention of tuberculosis in Texas, together with the bringing about the enforcement of all laws tending to prevent the spread of this disease, and for the aiding in the securing of sanatoria for incipient or advanced tuberculosis, and for cooperation with local anti-tuberculosis societies and the national and international tuberculosis associations.

Naturally, the accomplishments of this association were small in its beginning, and the revenues for the support of its work which have always been derived from sale of Christmas Seals amounted to no more than a few hundred dollars until the year of 1911.

In 1914, the Charter of the Texas Anti-Tuberculosis Association was amended to become the Texas Public Health Association, for the purpose of extending the activities of the organization into fields other than tuberculosis; but in 1932, the decision was reached to again amend the Charter to read Texas Tuberculosis Association.

Therefore, the Texas Tuberculosis Association and its affiliated county associations have been the one organized group which has confined its efforts to the purposes planned in its original Charter, and stands today as an active, cherished and efficient organization composed of sixty-five local tuberculosis associations.

Naturally, as local associations have been form-

ed, these have become more or less independent and have done effective and thorough work in their communities. Some of the larger organizations may be mentioned, together with their budgets as illustrative of the extent of activities in their particular communities: Houston, with a budget derived from the Christmas Seal Sale, of approximately \$18,000.00; Dallas, with a budget of \$16,000.00; Fort Worth, with a budget of \$10,000.00; San Antonio, with a budget of \$10,000.00; and El Paso with a budget of \$5,000.00. For several years there has been raised annually, through the Christmas Seal Sale in the State, approximately \$100,000, the larger percentage of which has remained in the communities holding local Seal Sales for the promotion of tuberculosis work, and we feel that these local organizations have contributed the greater part of the amazing reduction in death rate from tuberculosis, which, in the past thirty years, has been reduced from 200 to 63 per 100,000 population. So, too, should these local organizations be given credit for the expansion in hospital facilities for tuberculosis patients, which in 1908 amounted to none and which total approximately 3,000 beds in 1940.

In closing it should not be overlooked that Texas still has some 4,000 death from tuberculosis annually and there is much work yet to be done. We do, however, hold fast to the belief that, with the continued efforts of those public spirited citizens, who have carried the torch through the years, and are each year growing in number, that with enthusiasm and determined effort, our eventual goal of a state free of tuberculosis will be reached within a reasonable period of time.

Z. T. SCOTT, M.D.,
Managing Director
Texas Tuberculosis Association.

Chairman Texas Section



CHARLES J. KOERTH, M.D.

Dr. C. J. Koerth, Medical Superintendent of the Woodmen of the World War Memorial Hospital, was born in Lavaca County, Texas, August 2, 1896. After completing his elementary education in the local high school, Dr. Koerth received his Bachelor of Science degree from Texas Agricultural and Mechanical College in 1917, and a degree of Doctor of Medicine from Jefferson Medical School, Philadelphia, Pennsylvania, in 1921. He then served as interne at the Howard Hospital, Philadelphia, during 1921; and in 1922 became a resident physician of White Haven Tuberculosis Sanatorium, White Haven, Pennsylvania. He was assistant superintendent of the American Legion Sanatorium, Legion, Texas, in 1922-1923, and an assistant at the Texas State Tuberculosis Sanatorium, Sanatorium, Texas, during 1923-1924. In 1924, he was appointed assistant physician of the Woodmen of the World War Memorial Hospital, and became its Medical Superintendent in 1928.

Throughout his years of work in the tuberculosis field, Dr. Koerth has been vitally interested in the tuberculosis problem from a public health standpoint, and has rendered extensive service in the education of the general public in the control of tuberculosis. He owns a private collection of motion pictures showing a patient actually receiving treatment in a sanatorium, and has shown these pictures and lectured on "The Early Diagnosis and Treatment of Tuberculosis" in all parts of the United States.

In 1938, Dr. Koerth collaborated with Dr. R. E. Parrish in formulating what is now recognized as the "Koerth-Parrish four-point plan" for the control of tuberculosis in Bexar County, Texas. A part of this plan was submitted to the voters of Bexar County in November, 1940, who voted a bond issue for the erection of a \$285,000 city-county tuberculosis sanatorium.

Dr. Koerth has served as a member of the Board of Directors of the Texas State Tuberculosis Association, and as secretary and treasurer of the Bexar County Tuberculosis Association. He is also an active member of the following medical societies: National Tuberculosis Association, Southern Tuberculosis Conference, American College of Chest Physicians, American Medical Association, American College of Hospital Administrators, Southern Medical Association, Texas State Medical Society, Bexar County Medical Society, International Post Graduate Medical Assembly, American Hospital Association, American Sanatorium Association, Southern Sanatorium Association, and Texas Radiological Society.

Tuberculosis Pioneers in Texas



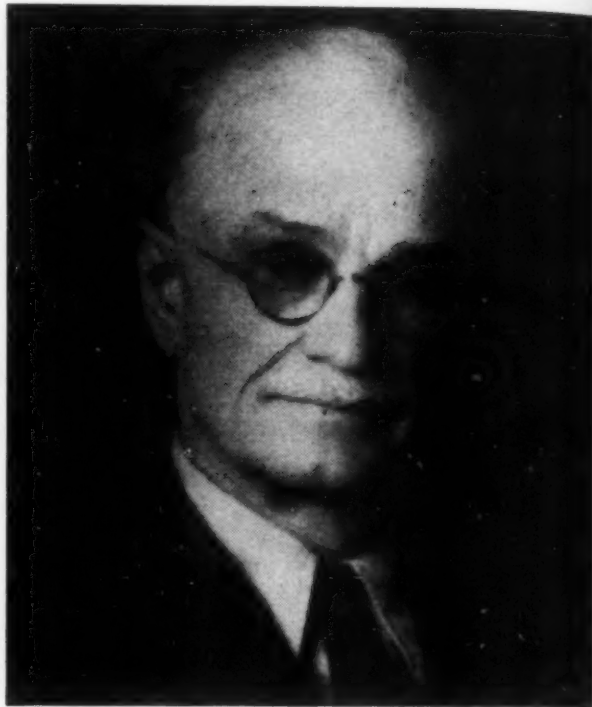
FRANCIS WATERS GALLAGHER, M.D.

1852 - 1915

Dr. Francis Waters Gallagher was born at Clarendon, New York, November 2, 1852 and he died at Los Angeles, California, July 18, 1915. He received his degree in medicine at the University of Buffalo in 1877.

At the age of 38, he came to El Paso because of tuberculosis, and established a private practice. He brought the first x-ray machine and the first compound microscope to this part of the country. He did a general practice of medicine and surgery, but being a victim of tuberculosis, his deepest interest was in that disease. He was an early and firm opponent of the then current "roughing it" treatment. He preached body rest and pulmonary rest. Having been convinced by two personal friends, Murphy and Forlanini, of the advantages of pneumothorax, he strongly advocated it. As a delegate to the National Tuberculosis Congress, he stressed rest, fresh air, proper alimentation and collapse therapy, as the cardinal principles in the treatment of tuberculosis. He last attended this Congress in 1908.

He had other interests than medicine to which he devoted great deal of his time. He served on the Board of the Public Schools and for many years he was an active member and officer of the Board of the El Paso Public Library.



WILLIAM McDUFFIE BRUMBY, M.D.

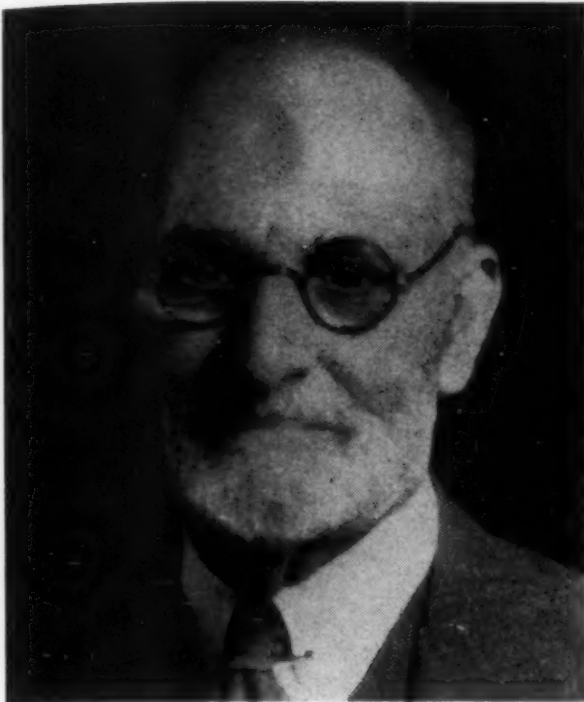
1866 -

Dr. William McDuffie Brumby was born at Delhi, Louisiana, 1866. There were no public schools in those days, a governess in the home, a private school, the University of Alabama, and a Tulane University graduate in Medicine in 1889, constituted his education. He was associated in practice at Delhi with his father, and a prominent physician. He located in Houston, Texas, in 1896; was a Lieut. in Spanish-American War; City Health Officer, from 1902 to 1907; and a State Health Officer from 1907 to 1911. He served as President of the first State Board of Health and he organized the Texas State Health Association in May, 1908.

He was a member of the National Association for the Study and Prevention of Tuberculosis in 1906, and was elected as first President of the Texas Anti-Tuberculosis Association in September 1908. He led a delegation of 65 members to the International Congress on Tuberculosis in Washington, September, 1908, and was a member of the Committee of Awards No. 1. He persuaded Dr. Livingston Farrand and Mr. Homer Folks of the New York Associated Charities, to loan Texas the first tuberculosis exhibit to be shown south of the Mason-Dixon Line. Enroute to Washington, a joint meeting of delegates from Oklahoma, and Missouri was held in St. Louis and a resolution to be presented to the International Congress was passed protesting against the tide of the immigration to the Southwest.

The pride of his heart apparently was the so-called "Texas Quarantine Against Tuberculosis." His threat of quarantine in July, 1907, against the indigent hopeless tuberculous nomadic wanderings in the Southwest, finally awakened the press and the public of every state in the Union to the responsibility of localities in caring for their own tuberculous paupers instead of sending them to other states under a pretense that climatic conditions were better.

Tuberculosis Pioneers in Texas



WILLIAM CARLTON FARMER, M.D.

1866 -

Dr. William Carlton Farmer was born at Bloomington, Indiana, December 6th, 1866. He received his Medical Degree from the Hospital College of Medicine, Louisville, Kentucky, in 1891.

Beginning in 1897, Dr. Farmer was one of the pioneers in demonstrating the value of x-ray findings in diagnosis of tuberculosis, and still continues his interest in this field. He located in San Antonio in 1905 and established a sanatorium for tuberculous patients, which was very successfully maintained for many years. In 1912, he began the use of artificial pneumothorax for collapse of the tuberculous lung.

Dr. Farmer has contributed numerous articles to medical literature. He has taken post graduate work in several of the leading clinical centers of the United States and also made three trips to Europe to study in the outstanding clinics, including London, Paris, Hamburg, Berlin, Breslau, Vienna and Budapest.

Dr. Farmer was a delegate to the International World Congress of Tuberculosis, Washington, D. C., in 1908, receiving his appointment from Governor Campbell of Texas. He is a member of the International Union Against Tuberculosis and was an official delegate to the meetings in Rome in 1928 and Oslo in 1930.

He has been a member of the National Tuberculosis Association since 1904, and a Member of the Board of Directors for several years.

He is a Past President of the Texas State Tuberculosis Association and a member of the Board of Directors, a member and Honorary Life President of Bexar County Tuberculosis Association, San Antonio. He is a member of the State Medical Association of Texas and Honorary Life Member of the Bexar County Medical Association, San Antonio. He is a member of the International Post-Graduate Assembly.

He served as member of San Antonio Board of Health during 1938 and 1939, and he is a charter member of the American College of Chest Physicians. Dr. Farmer is at present engaged in private practice in San Antonio, specializing in diseases of the chest.



ELVA A. WRIGHT, M.D.

1868 -

Dr. Elva A. Wright was born in Hilldale County, Pennsylvania, of Dutch-Scotch parentage in 1868. She received her early education in the public schools, her bachelor of science degree at Valpariso University, and her M.D. at Northwestern. Her early practice was in Chicago. She helped organize the Lake County Tuberculosis Hospital, which recently completed a new \$600,000 unit. Post-graduate work at University of Edinburgh and clinics at the Great Orman Street Hospital in London, where she observed the great number of tuberculosis children, developed her interest in tuberculosis control.

Returning to America, she entered obstetrical practice in Houston, but contributed much of her time to crusading for public interest in the tuberculosis problem. She founded the Houston Anti-Tuberculosis League on November 11, 1911, and has been its president and active in its clinics since. She has served regularly as chief of its children's clinic, is ex-chairman of its general medical staff, fostered establishment of the Houston Tuberculosis Hospital of which she was for many years children's division chief. She served twice as president of the Texas Tuberculosis Association, has been a board member of that body continuously for a quarter-century, is a past president of the Southern Tuberculosis Conference and a former member of the National Tuberculosis Association governing board. As State Association president, she instituted a five-year state-wide skin-test program. She was an early worker for the establishment of the South Texas Post-Graduate Medical Assembly.

Before the World War she organized in Houston its first city children's clinic, was an early leader in establishment of a city-county hospital, fostered action for a new \$2,000,000 plant for that institution—the Jefferson Davis Hospital—which was built two years ago, and served 21 years on the hospital's obstetrical staff. Last year the city honored her for her services to the hospital and she became emeritus visiting staff doctor in charge of home delivery service.

Tuberculosis Pioneers in Texas



JOE BANNING McKNIGHT, M.D.
1869 -

Dr. McKnight was born at Dallas. He received his early education at Mason and later entered the Memphis Hospital and Medical College, graduating in 1893. He was practicing medicine at Brady in 1914 when the Hon. O. B. Colquitt, then governor of Texas, asked him to take over the management of the small tuberculosis colony. For 27 years, he has been superintendent of the Texas State Tuberculosis Sanatorium and through his efforts, it has grown to be a 1,000 bed institution. More than 28,000 patients have been received since its establishment. He has received post graduate training in tuberculosis at New York City, Trudeau, Chicago, Colorado Springs and New Orleans.

Some of the high-lights of his career include the following: established in 1915 a special two-year school of nursing for the training of arrested tuberculous men and women in the care and management of tuberculous patients; established in 1918 an extension division which has supplied printed matter and information in regard to the study and prevention of tuberculosis for the citizens of Texas, especially pupils of the public schools in the state; served as a member of the building committee in 1922 for the erection of the \$1,500,000 American Legion Memorial Hospital (now the U. S. Veterans Administration Facility, Legion); established in 1936 a modern cottage for physicians in Texas who desired to come to the sanatorium and receive post-graduate training in tuberculosis; served as a member of the committee in 1937 to locate and establish the Kerrville State Sanatorium, Kerrville, a 172-bed hospital for tuberculous negroes.

Dr. McKnight has served for many years as an officer of the Tom Green Eight County Medical Society. He is an active member of the Texas and American Medical Associations. He is a member of the board of trustees, Texas State Medical Association, and is past president of the Texas Tuberculosis Association. Dr. McKnight is a Fellow of the American College of Chest Physicians, a member of the National Tuberculosis Association and the American Hospital Association.



SAM E. THOMPSON, M.D.
1871 -

Dr. SAM E. THOMPSON, was born in Claiborne Parish, Louisiana, May 24th, 1871. He was the son of ROBERT EVANS AND MARIA L. (BUSH) THOMPSON. He attended Hendrix College, Conway, Arkansas, and received his degree in medicine from the University of Louisville in 1904. He practiced medicine in El Dorado, Arkansas, from 1904 to 1911—at which time he came to Texas for his health. Was Medical Director of THE TEXAS STATE SANATORIUM, TOM GREEN COUNTY, SANATORIUM, TEXAS from 1912 to December 1916. He owned and operated THE THOMPSON SANATORIUM, KERRVILLE, from March 1917 to January 1937 at which time the sanatorium was sold to THE STATE OF TEXAS AND it is now being operated as The Kerrville State Sanatorium for Negroes. He has studied tuberculosis in the leading centers of the UNITED STATES and in EUROPE. He married ANNIE LEE PINSON of El Dorado, Arkansas, in Fort Worth, Texas, on August 13th, 1914.

He is the Past President of the 5th and 6th Medical Districts, THE TEXAS STATE ASSOCIATION, LIFE MEMBER OF FELLOW ASSOCIATE COLLEGE OF PHYSICIANS AND THE AMERICAN ASSOCIATION OF VIENNA. Member American Authors' and Editors' Association, County, District, State, Southern, National and American Medical Associations. Clubs: Kerrville Rotary (First President), 47th District Rotary (Past Governor), Eagle NEST and Manor Lake Fishing. Author of various articles on medical subjects. He is now chairman EIGHTH CORPS AREA COMMITTEE OF MEDICAL PREPAREDNESS AMERICAN MEDICAL ASSOCIATION.

Tuberculosis Pioneers in Texas



ROBERT B. HOMAN, Sr., M.D.

1872 -

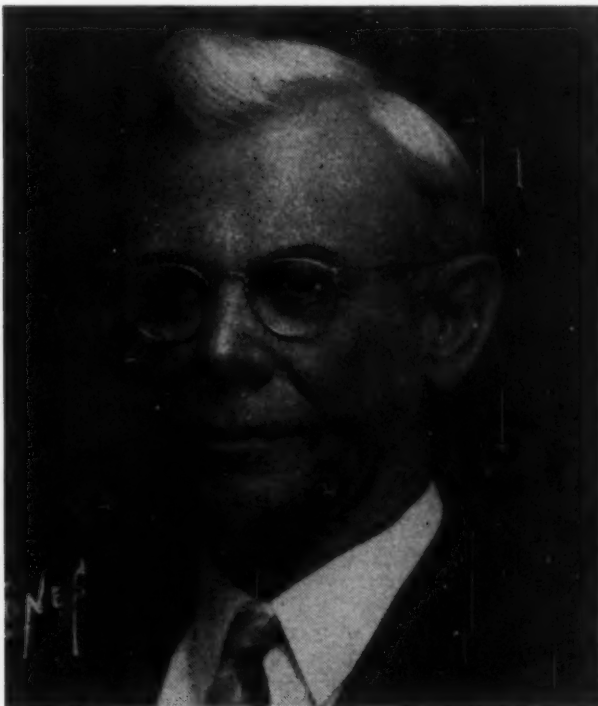
Outstanding among the pioneers in tuberculosis work in Texas and the Southwest is Dr. B. Homan, Sr., who for the past 34 years has limited his work to the practice of diseases of the chest, and who was one of the first physicians in this section to induce pneumothorax as a means of treatment for tuberculosis.

Dr. Homan was born May 25, 1872, at Bryan, Texas. He was graduated from the Medical Department of the University of Texas in 1897, and after serving a year's internship at the Parkland City Hospital in Dallas, Texas, he went to Colorado City, Texas, where he engaged in the general practice of medicine from 1898 to 1905. He then returned to Dallas and opened his office in that city, and after four month's of practice he suffered a pulmonary hemorrhage.

He spent one year at the Winyah Sanatorium in Asheville, North Carolina, during part of which time he served as a member of the staff of that institution. In 1907 he came to El Paso and opened his office, limiting his work to diseases of the chest. In 1910 Dr. Homan leased the Albert Baldwin Sanatorium and after operating it as the Homan Sanatorium for fifteen years, he then built his own 110 bed institution. In 1937 the Homan Sanatorium was converted into a general hospital, now known as Southwestern General Hospital, and Dr. Homan moved his patients with tuberculosis to St. Joseph's Sanatorium, where he is Associate Medical Director.

Dr. Homan is at present Chairman of the Texas State Committee on Tuberculosis; is a member of the Board of Directors of the El Paso County Tuberculosis; is on the Board of Directors of the Southwestern Medical & Surgical Association; is a Fellow of the American College of Chest Physicians, and is Associate Editor of *Diseases of the Chest*.

He is past president of the El Paso County Medical Society; past Councilor of District No. 1, of the Texas State Medical Association, past president of the El Paso County Tuberculosis Society, and a past member of the Board of Directors of the National Tuberculosis Association.



HOLMAN TAYLOR, M.D.

1874 -

Dr. Holman Taylor, son of the Dr. and Mrs. J. H. Taylor, was born at Hallsville, Texas, April 8, 1874. He received his education in the public Schools of Marshall, Texas. He attended Bethel College at Russellville, Kentucky, and he graduated in medicine from University of Texas, Galveston, in 1899. He entered the private practice of medicine at Marshall in partnership with his father and in 1910 he moved to Fort Worth to engage in the practice of medicine.

He became the Secretary-Editor of the State Medical Association of Texas in 1910 and he is still serving in that capacity.

Dr. Taylor began his military career as a private in 1891, and within two years he was made a Second Lieutenant. He served in every capacity in the line up to and including Brigadier General, which rank he held at the time of his retirement. He was retired April 8, 1938, with the rank of Brevet Major General.

Dr. Taylor has been a member of the Board of Directors of the State and Tarrant County Tuberculosis Associations for many years. He has served on numerous committees of the State and the American Medical Association. He was the Chairman of the Military Affairs Committee of the American Medical Association following the last World War and he is now serving as the Chairman for the State of Texas of the Committee on Medical Preparedness of the American Medical Association.

Dr. Taylor was married to Miss Fannie Eleanor Lake of Marshall on October 5, 1910. There is one son, Holman Taylor, Jr., at the present time a sophomore in the Medical School of the University of Texas.

Tuberculosis Pioneers in Texas



JOHN POTTS, M.D.
1879 -

Dr. John Potts of Fort Worth, Texas, has been dealing with heart and lung diseases since the "Dark Ages." Being a born teacher, a gifted public speaker, and an interesting writer, he has taught as he learned, with the result that he is a very widely quoted man.

Doctor Potts, as a Major in the Medical Corps, did chest work for over two years in World War No. 1. His military experience in various places in America and the A. E. F. required him—in the language of Sir James MacKenzie—to use his head, his hands, and his special senses. Both as civilian and soldier Dr. Potts has always been somewhat of a one-man show while at work. Even now, at his charity clinic that he has held for 21 years, from two to a dozen nurses, interns, residents, and more mature doctors voluntarily attend every week to look, listen, and learn.

During the doctor's years in Fort Worth, he has seen the death rate for tuberculosis go down in that place from an estimate of 200 to less than 40 deaths, annually, to the 100,000 population.

The University of the South gave Doctor Potts an academic honor (D.C.L.) in 1934 for his far-flung influence in tuberculosis work.



ZACHARY T. SCOTT, M.D.
1880 -

Dr. Zachary T. Scott was born at Fort Worth, Texas, in 1880. He was educated in Public Schools of Texas and at Bel-Air College in Virginia. He graduated in Medicine at the University of Texas, in 1903.

He served as State Bacteriologist and Assistant State Health Officer from 1910-1911. He served with the Medical Corps United States Navy 1917-1919 and held the rank of Lieutenant-Commander. Since then, he has been engaged in the private practice of medicine at Austin.

He became interested in tuberculosis after graduating in medicine because of the many deaths in his family from that disease. He identified himself with Texas Tuberculosis Association in 1909, and he has successively held every office in that organization—Director, Secretary, Vice-President, President, Executive Secretary and Managing Director, which latter office he now holds.

While Doctor Scott is engaged in the active practice of medicine he is interested in every phase of anti-tuberculosis work. He was active in support of legislation which established state operated sanatoria for both white and colored in Texas, and the passage of laws permitting the operation by counties within the state of separate institutions for tuberculosis patients.

He is now chairman of the Board operating the Austin-Travis County Tuberculosis Sanatorium.

Texas Sanatoria



STATE TUBERCULOSIS SANATORIUM SANATORIUM, TEXAS

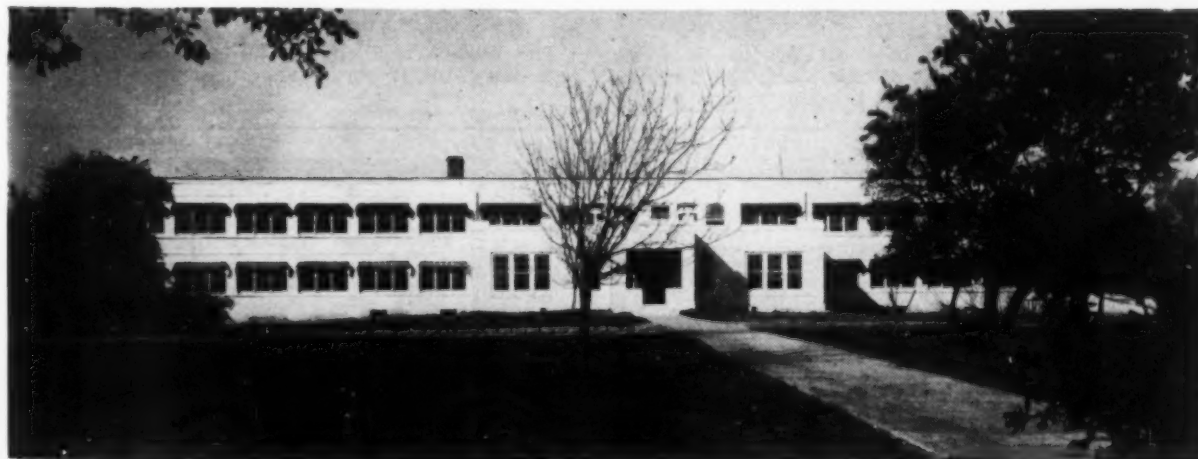
The large eleemosynary hospital pictured above is the State Tuberculosis Sanatorium of Texas. The institution is owned and maintained by the State of Texas. Established and opened July, 1912, with fifty-seven beds, the sanatorium is located seventeen miles northwest of San Angelo and today has approximately 1,000 beds for treating bona fide residents of the state who have primary or reinfection types of tuberculosis. The hospital represents an investment of \$2,000,000.

Having 1,000 acres of land the sanatorium is located at the foot-hills of the Carlsbad Mountains, facing the spring-fed North Concho River. Elevation is about

2,000 feet above sea level and climate is semi-arid, with many days of sunshine throughout the year. Winters are not as a rule disagreeable nor are summers oppressively warm. The surrounding country is typical of West Texas.

There are thirty-five major buildings, including seventeen dormitories for patients. Most of the buildings are reinforced concrete and are fire-proof. Seven of the dormitories are arranged for ambulant patients, while the remaining ten buildings have individual diet kitchens and are modern in every respect. The

(Continued to Page 149)



State Tuberculosis Sanatorium for Negroes KERRVILLE, TEXAS

The Kerrville State Sanatorium, a modern 172-bed institution supported and maintained by the State of Texas for the treatment of tuberculosis Negroes, was opened in 1937 in a near-virgin field of tuberculosis control. Splendid results have been obtained at the sanatorium, which is located in the Hill Country—one of the nation's most beautiful localities, long known as a popular resort. Patients are admitted to two large dormitories, one of which is shown in the above picture, and to 34 tile cottages. Offered free of charge to indigent tuberculosis Negroes, the sanatorium has the latest and most successful treatments known to the medical world, including artificial pneumothorax and facilities for various operations—phrenicectomies,

pneumolyses, etc. Food served at the institution—which formerly was the Thompson Sanatorium, a widely-known private hospital, is the best that can be obtained. Dr. H. Y. Swayze, who has been connected with the treatment of tuberculosis for more than a quarter of a century, is superintendent and medical director. He is assisted by two physicians and a staff of nine nurses, four registered and five practical. Appropriation for the erection of a 30-bed children's hospital for the treatment of tuberculous children is being asked of the Texas Legislature. The institution was established to aid in the decrease of the Texas Negro death rate, which is more than three times that of the white mortality rate.

Texas Sanatoria



Woodmen of the World Memorial Hospital SAN ANTONIO, TEXAS

The Woodmen of the World Memorial Hospital, located on a 210 acre tract six miles north of the business district of San Antonio, Texas, admitted its first patient on July 4, 1923. This 150 bed hospital, owned and operated by the Woodmen of the World Life Insurance Society, was established to combat scientifically the ravages of the disease, tuberculosis, and as a memorial to members of the organization who participated in the Spanish-American and World Wars. It provides twenty months of free treatment to its members who have become afflicted with pulmonary tuberculosis.

The hospital has an active medical staff of twenty-five members, including specialists from all branches of medical science headed by Dr. C. J. Koerth, Medical Superintendent and Chief of Staff. As the result of untiring effort on the part of this staff, the hospital was recognized as an approved hospital by the Amer-

ican College of Surgeons, and for the training of resident physicians by the American Medical Association in 1938.

During its years of operation approximately three thousand patients have been treated. Patients are given the benefit of artificial pneumothorax, thoracic surgery, and other types of modern treatment. The hospital has a fully equipped X-ray and clinical laboratory. A corps of ten nurses, and an X-ray and laboratory technician are employed.

In addition to medical treatment the hospital management is vitally interested in the rehabilitation of tuberculosis patients, and several vocational and occupational therapy units have been installed in the hospital.

The Woodmen Hospital also operates its own farm and dairy, under competent supervision.



The Veterans Administration Facility LEGION, TEXAS

The Veterans Administration Facility at Legion, Texas, is a four hundred and twenty bed hospital maintained by the United States Veterans Administration primarily for the treatment of pulmonary tuberculosis and its complications. Approximately two hundred of the beds are now utilized for general medical and surgical cases.

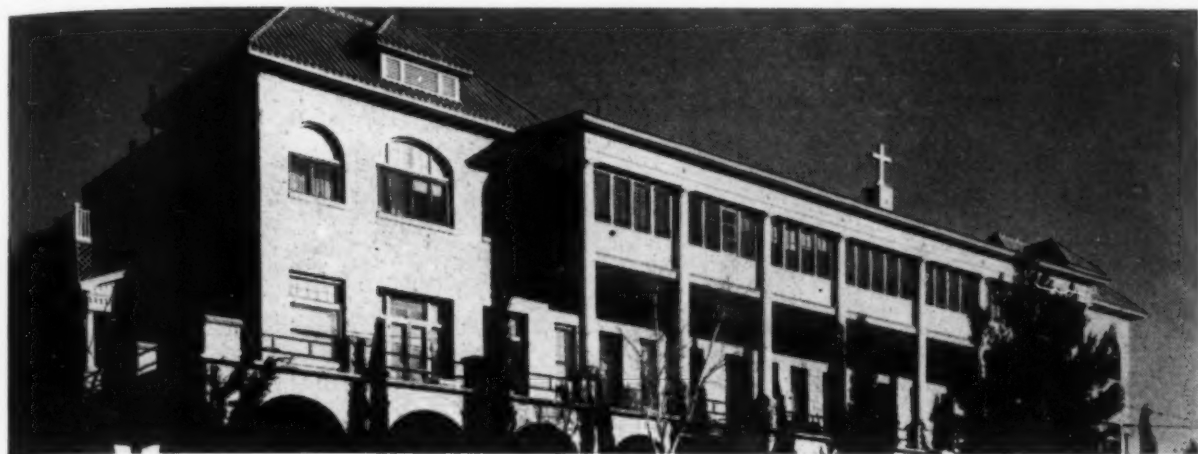
Of historical interest is the fact that the institution

was conceived and partially constructed by the American Legion, Department of Texas. The State of Texas completed the building program and originally operated it. Subsequently it was leased and later sold to the Veterans Administration.

The "Hill Country," of which the picturesque City of Kerrville is the capital, has long been famous for

(Continued to Page 149)

Texas Sanatoria



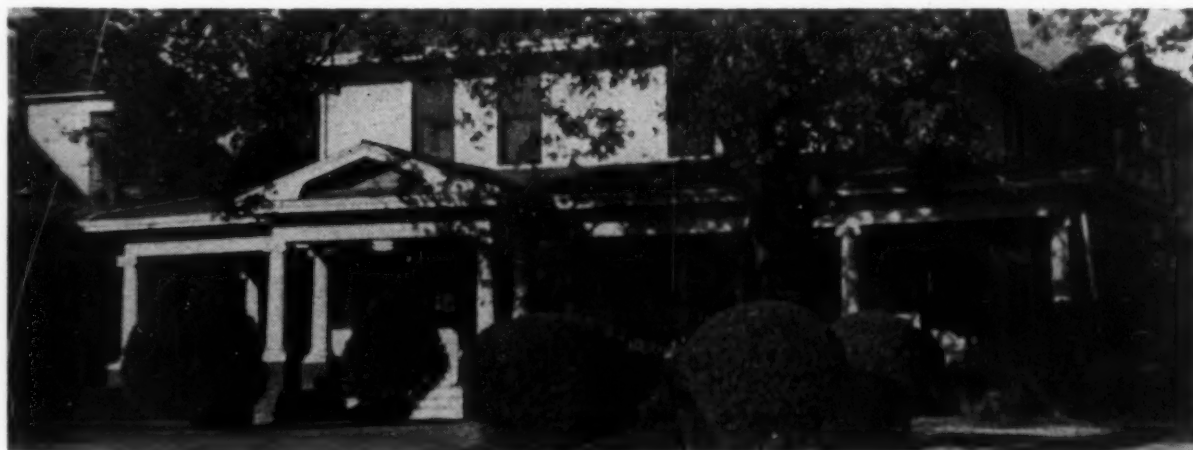
ST. JOSEPH'S SANATORIUM

EL PASO, TEXAS

In 1927, the Right Reverend A. J. Schuler, Bishop of El Paso, established St. Joseph's Sanatorium and Hospital under the direction of the Sisters of St. Joseph.

The physical plant is a stone structure of seventy-five patient rooms with laboratories and equipment complete to handle respiratory diseases. The Sisters, who are graduate nurses, have charge of the nursing and the administration. The present Superior is Sister Mary Felicitas, R. N. The institution since its origin has been under the Medical Direction of Dr. O. E. Egbert. Four years ago, Dr. R. B. Homan, Sr., and Dr. R. B. Homan, Jr., were added to the Medical Staff and the Drs. Homan and Dr. Egbert make up the present Medical Staff of the institution.

The institution is operated as a private hospital with a closed Staff and in addition to the receipt of private patients there is a charity policy which yields approximately five hundred patient days a year. This is limited to patients who are unable to pay for care. The institution in its charities operates in co-operation with the El Paso County Tuberculosis Association. The Sisters also maintain an out patient department and this may be summed up as a Pneumothorax Clinic. There were over a thousand pneumothorax administrations given on out patients during the past year. Collapse therapy has been of foremost interest in this institution and some of the pioneer work in bilateral pneumothorax was done at St. Joseph's Sanatorium.



CARMAN SANATORIUM

DALLAS, TEXAS

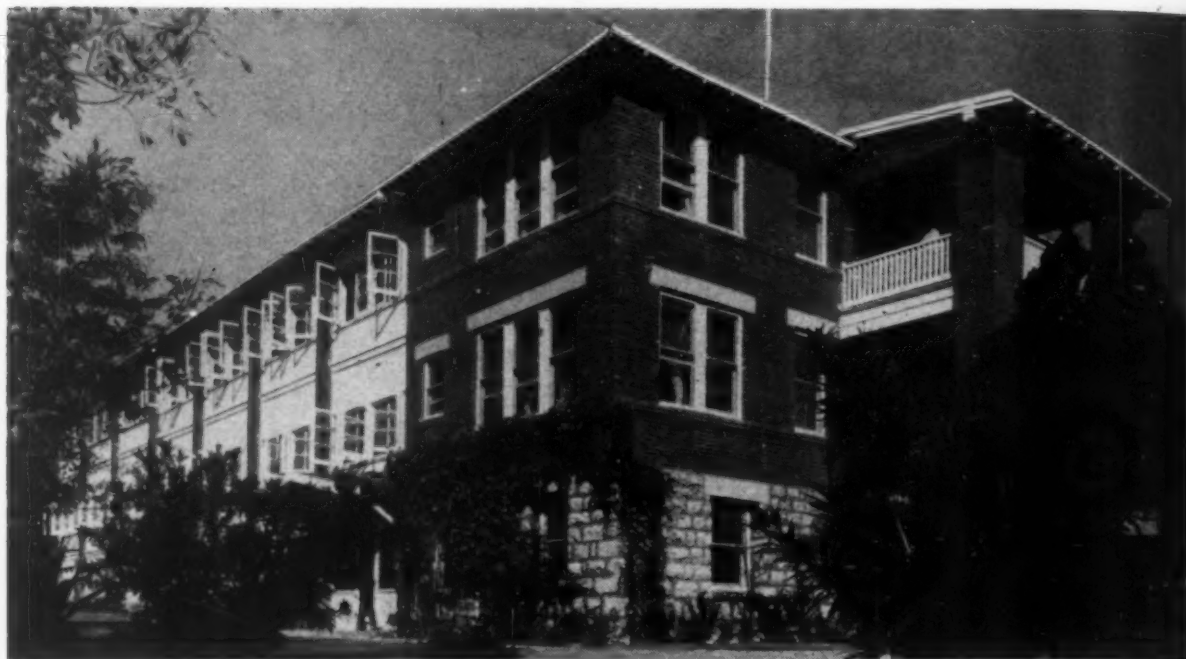
The Carman Sanatorium, Inc., located at 2410 North Haskell Avenue, is a small institution, offering every patient the best of specialized care and attention. Each case is individually treated and prescribed for. Patients with all degrees of involvement are admitted. Those requiring artificial pneumothorax and other forms of collapse therapy are carefully regulated. Special attention is given to dietary needs.

It is the objective of the institution to train the patient and to help him achieve an arrest of his disease as soon as possible, and to assist him in making the necessary readjustment in his return to normal living.

The rates are reasonable.

Medical Director, H. Frank Carman, M.D., F.A.C.P.

Texas Sanatoria



THE LONG SANATORIUM
EL PASO, TEXAS

The genesis of the Long Sanatorium dates back to 1916 when Dr. A. D. Long came to El Paso from Louisiana as a health seeker. During the year that Dr. Long remained in bed he had ample time to think of the disease in its varying implications. He reasoned that to recover, one must have proper examination,

diagnosis, treatment, and he realized that this could best be obtained in a well regulated institution.

Dr. Long realized from personal experience that tuberculosis is no respecter of the victims economic status and therefore an institution which could do
(Continued to Page 149)



The Potter County Tuberculosis Cottage
AMARILLO, TEXAS

The Tuberculosis Cottage is a part of Potter County Hospital Building project that was made possible in 1923. Citizens of the county voted a bond issue in the amount of \$250,000. The Tuberculosis Cottage equipment represents an investment of \$20,000.

At the beginning, nursing service was carried on with a graduate registered nurse and student nurses as assistants. This practice was discontinued in 1934 and now three Graduate Tuberculosis Nurses from the Texas State Sanatorium are employed.

There are nine beds in the Cottage and twenty-six

available hospital beds in Amarillo for adult tuberculosis. The length of stay is unlimited, and every three months patients routinely receive a chest examination and chest x-ray.

Patients resting seventeen hours a day find the routine somewhat similar to that used in the Texas State Sanatorium. Artificial Pneumothorax is given in the Cottage. Operations are performed in the main hospital. Patients in all stages of tuberculosis are received.

Texas Sanatoria



GRACE LUTHERAN SANATORIUM SAN ANTONIO, TEXAS

Grace Lutheran Sanatorium, located in San Antonio, Texas, is owned, operated, and supported by the American Lutheran Church for the care and treatment of tuberculosis patients who have hope of recovery and can be benefitted by sanatorium treatment.

The idea of a Lutheran Sanatorium originated with

an early pastor of San Antonio's Grace Lutheran Church, Reverend J. C. Felger, and his congregation, who felt that provision should be made for Lutheran patients with tuberculosis who were stranded in San Antonio. A Sanatorium Board was appointed, and

(Continued to page 156)



Austin - Travis County Tuberculosis Sanatorium AUSTIN, TEXAS

The Austin-Travis County Tuberculosis Sanatorium of fifty beds was opened May 6th, 1940.

The sanatorium is located five miles east of Austin, Texas, on a sixteen acre plot of ground donated by the County. It was sponsored through the efforts of the Austin Womens Clubs and the Austin Junior Chamber of Commerce, together with money raised by public donations, county and city appropriations and a federal grant. It is governed by a Board of Directors appointed by the County Judge, with Dr. Z. T. Scott President of the Board.

The building has six separate wings, with private

rooms, to accommodate white, Mexican, and colored patients. It is equipped and provides treatment for all stages of pulmonary tuberculosis and has complete laboratory facilities. There is a fully equipped x-ray department and all minor surgery, such as pneumothorax, phrenics, pneumonolysis, etc., is performed in the sanatorium. Major surgery, such as thoracoplasty, is performed at Breckenridge Hospital.

Admission to the sanatorium is limited to citizens of Travis County. Mrs. Sallie Trousdale, R. N. is Superintendent and F. N. Moore, M.D., F.A.C.C.P., is Medical Director.

Texas Sanatoria



SUNNYSIDE SANATORIUM

KERRVILLE, TEXAS

Sunnyside in the "Heart O' the the Hills" is situated on the south-east slope of the hill at an altitude of 2,000 feet. Three miles away down the valley is the thriving City of Kerrville, Texas, the average rainfall of which is 29.65 inches and the average temperature of 65 degrees, making it a most desirable health center.

The sanatorium consists of the Main Building, which is steam heated and modern through-out. It contains four private rooms and two glassed-in porches with accommodations for three patients each. It contains the x-ray, fluoroscopic and clinical laboratories and nurses' accommodation.

It also contains the kitchen, which serves home

cooked meals appetitizingly served at the bedside.

There are four stucco double cottages and two rock cottages with modern conveniences.

The sanatorium being of a twenty bed capacity enables the Medical Director, who resides at the sanatorium, to give individual attention to the patient, which is so essential in the treatment and cure of tuberculosis.

Sunnyside is the private sanatorium of Dr. W. R. Fickessen, which was established in 1933 and he has been its Medical Director since that time, and is an active member of the American College of Chest Physicians and the American Medical Association Hospital Register.



WOODLAWN TUBERCULOSIS SANATORIUM

DALLAS, TEXAS

Woodlawn Hospital of Dallas Texas was started in 1913. It was one of the first county institutions for tuberculosis to be constructed in Texas and the first unit contained sixty beds. It has a very beautiful location on the side of a hill just outside the city limits, about ten minutes ride from the county court house on the north west side of the city about one half mile off the Industrial Boulevard.

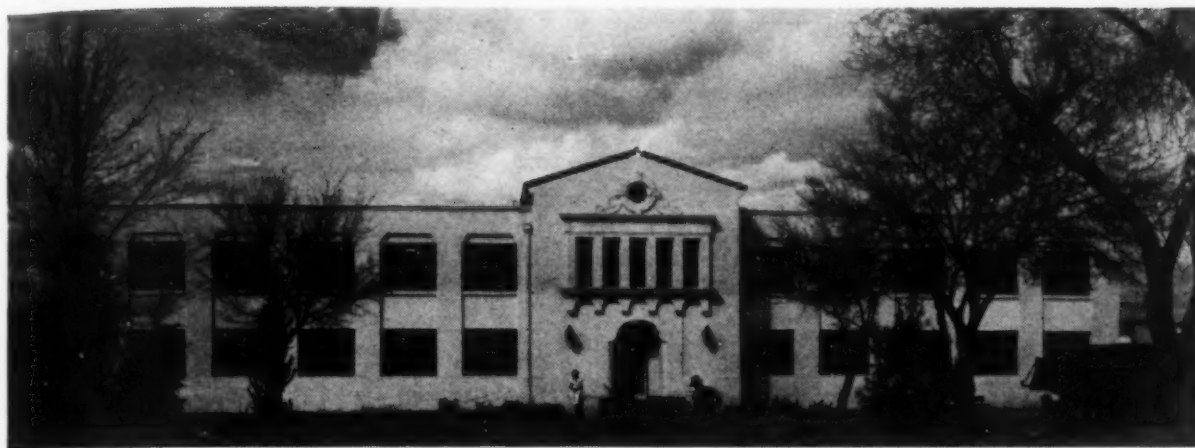
The women's building is a brick structure located on the east side of the grounds, erected in 1919, and contains 45 beds. The colored ward was the last building to be added in 1922. It is a frame building

and is now being enlarged to a capacity of 23 beds, which brings the total capacity of the institution up to 125 beds.

In 1923, this hospital was consolidated with the other institutions belonging to the county and city of Dallas to form the City-County Hospital system of which it is now the tuberculosis division. It admits patients from the county and city who have had at least one year's residence before making application.

Dr. Roy Goggans has been the superintendent and Medical Director since 1921.

Texas Sanatoria



El Paso City - County Tuberculosis Sanatorium EL PASO, TEXAS

El Paso County at a cost of \$66,000 has just completed a new modernly equipped eighty-eight bed hospital for the treatment of Tuberculosis.

This building is on the grounds occupied by the City County Hospital which has itself been modernized by new surgical units, surgical and medical wards and a contagious hospital as well as a most attractive nurse's Home.

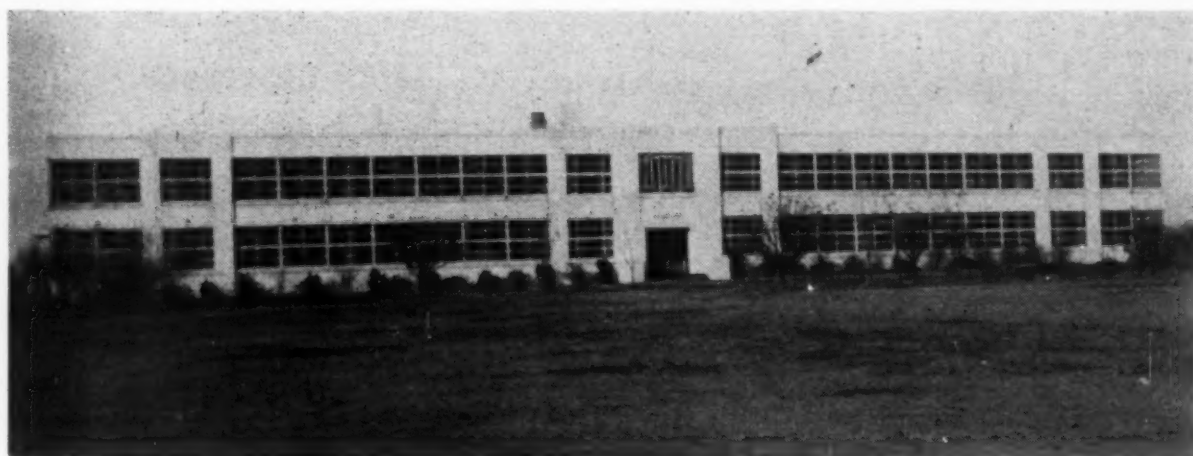
Today, El Paso feels very proud of its new and renovated City-County Hospital and particularly of this last building newly added for the hospitalization of tuberculosis patients.

This building, of fire-proof construction done in a cream stucco exterior, is two stories with east and west wings, and a ward in each wing. The private

rooms for the sicker patients are in the back, separated from the wards by a main hall. There are porches at the East and West ends for each floor. Within each wing are toilet and bath facilities. A small recreation hall and serving kitchen as well as a superintendent's office, examining room with fluoroscope, a dark room and a sterilizing room fully equipped and a pneumothorax room are also provided. The floors are of asphalt tile, resilient and delightful in appearance. The interior is done in a cream color and is very airy with large windows for ventilation. Forced hot air heat the rooms in winter.

We feel the building is the last word in the hospitalization treatment for tuberculosis.

—J. Mott Rawlings, M.D.



ELMWOOD SANATORIUM FORT WORTH (Tarrant County), TEXAS

About 1913, Fort Worth and Tarrant County established a joint "pest house" for the indigent tuberculous and those suffering with small pox. There were originally three cottages for the tuberculous, but the demand increased and in 1919 there were twenty-two cottages.

In 1919, Dr. H. V. Helbing was appointed Medical Director, which position he now holds and it was under his able management that the care of the tuberculous of Tarrant County has reached its present high level. Soon after his appointment the care of

small pox patients here was discontinued. About 1921, Dr. John Potts established a Chest Clinic with the aid of the Welfare Association of Fort Worth. A short time later, this Clinic was transferred to the City County Hospital and is still under the direction of Dr. Potts. Applicants are examined by him before admittance to Elmwood.

In 1927, a joint Board of Managers of the City of Fort Worth and Tarrant County was set up and a Budget adopted. They continued to share the ex-

(Continued to page 156)

Texas Sanatoria



Bexar County Tuberculosis Sanatorium SOUTHTON (San Antonio), TEXAS

A Tuberculosis Sanatorium for Bexar County originally consisted of only a few rude bungalows situated in that part of Brackenridge Park which is now the famous Sunken Garden. The bungalows were few in number, and consequently only a few patients could be cared for.

In 1912, these bungalows were moved to a site south of the city of San Antonio, and the sanatorium assumed the name of Southton. It still exists on this site. A modern building was erected in 1926, which greatly increased facilities for caring for the patients. In 1929 a kitchen and dining room were built for the main building, and in 1931 an additional wing was

added. At the present time the sanatorium can care for 78 patients.

Patients with all types of active pulmonary tuberculosis are eligible for admission. They are treated by bed rest, artificial pneumothorax, and other surgical treatment. At present there is no time limit for the length of the patient's stay.

The sanatorium is supervised by the County Board of Health, headed by Dr. J. H. Burleson.

In November 5, 1940 the citizens of Bexar County voted a bond issue for \$285,000 for the erection of a new hospital building. This will provide an additional 150 beds for the Bexar County Tuberculosis Sanatorium.



THE AMARILLO PREVENTORIUM AMARILLO, TEXAS

Three miles northwest of Amarillo the Amarillo Preventorium provides care and treatment for tuberculosis children. It is sponsored by the Potter County Tuberculosis Association, of which Dr. J. B. White is the president.

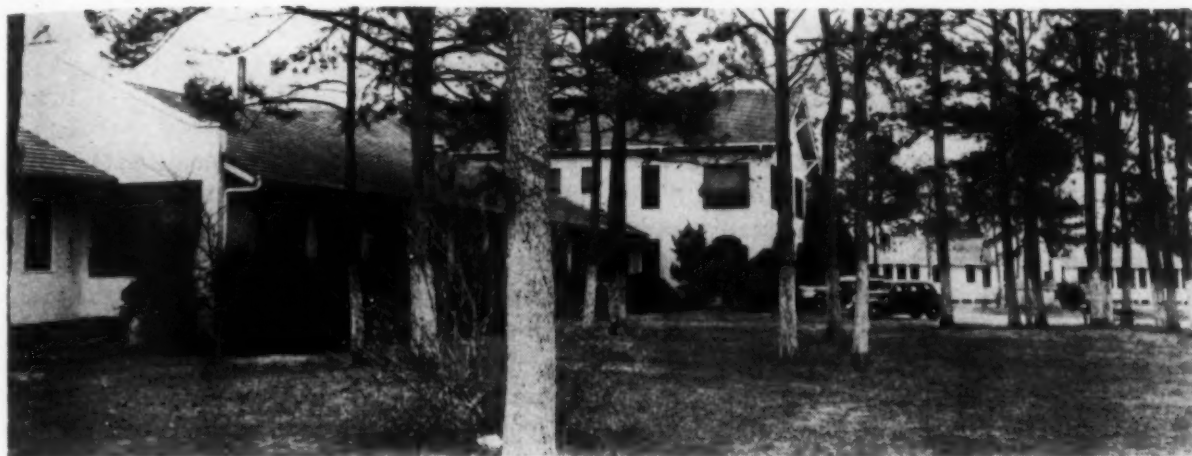
The modern well equipped sanatorium provides accommodation for sixty patients and since the preventorium was established in 1937, three hundred children have been treated. The length of stay is unlimited, and every three months patients receive a chest examination and x-ray.

Fire destroyed the first building in 1938, and through the efforts of a group of young Amarillo businessmen, the funds for the new building were raised. Much of

the material and labor were donated, and a \$32,000 building was constructed at an actual cost of about \$12,000. A peaceful, homelike atmosphere prevails in the attractively furnished buildings. Labor is furnished through WPA funds. All medical attention has been given free by Amarillo doctors. A staff of three graduate nurses is maintained.

Children admitted to the Preventorium for treatment are certified by the Potter County Tuberculosis Clinic, and are provided hospitalization and care without cost. Each child is underwritten for maintenance by civic clubs, business firms, individuals, churches and Sunday School Classes.

Texas Sanatoria



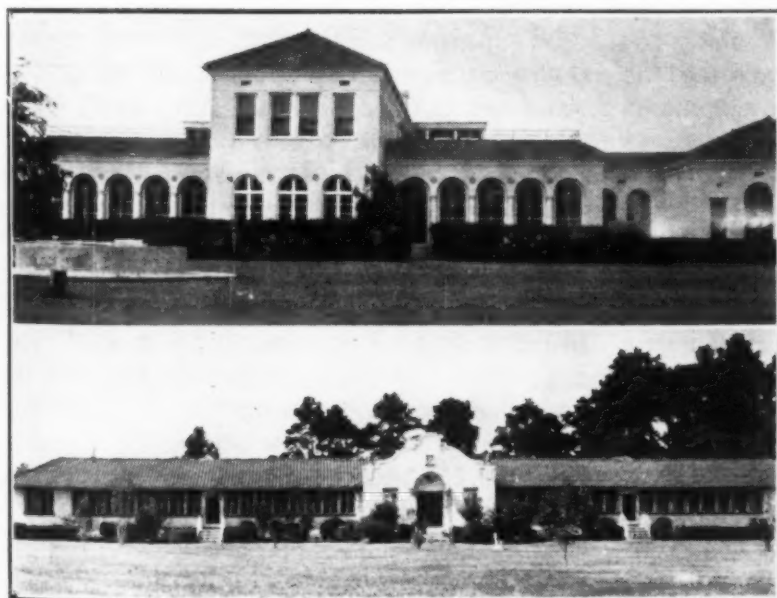
Jefferson County Tuberculosis Sanatorium BEAUMONT, TEXAS

The Jefferson County Tuberculosis Hospital, located about five miles north of Beaumont, first opened its doors on December 9, 1924. The Lions Club started the movement for its erection and was aided by other civic-minded organizations. In March, 1930, a unit for negro patients was erected about eight miles west of Beaumont. Both units are under the same management and are equipped to care for one hundred fifteen (115) white patients and sixty (60) colored patients. A new surgical wing and a new children's wing have just been completed, making all modern methods

of treatment available. The hospital is located on a twenty acre tract of southern pines with spacious lawns giving it a beautiful setting.

A consulting staff of local physicians provide for diagnostic consultations, thoracic and other surgery, dentistry, etc. The hospital has a complete clinical and x-ray laboratory.

The hospital is under the supervision of a hospital board of six members, appointed by the county commissioners. Dr. M. A. Cunningham is the superintendent and medical director.



AUTRY MEMORIAL HOSPITAL

HOUSTON,
TEXAS

The first unit of the Houston Tuberculosis Hospital was opened on May 20, 1918. Additions were made in 1920, 1921, and 1923, giving the institution a total of 90 beds, 20 of which were for negroes.

In 1925, a children's hospital and preventorium was built through the beneficence of Mrs. James L. Autry of Houston. The City Council provided the space on the hospital grounds and guaranteed its permanent maintenance. The Board of Independent School District provided teachers and school equipment. The

staff of the hospital assumed the medical care. The capacity of the institution was for 50 children and the institution was an integral part of the public school system.

In 1926, a nurses' home and administration building was constructed; and in 1931, the women of the First Presbyterian Church gave to the City of Houston and Harris County, a 24 bed unit for the care of moderately advanced men and women.

Closed Intrapleural Pneumonolysis

DAVID McCULLOUGH, M.D. and JOHN CHAPMAN, M.D.
Sanatorium, Texas

In the early stages of his pioneering work with artificial pneumothorax, Forlanini realised that effective collapse of tuberculous lungs was frequently prevented by the presence of adhesions between the visceral and parietal pleurae. He stated that in time the adhesions would often stretch sufficiently to allow a satisfactory collapse, but it was soon found that in many cases cavities remained open after months of pneumothorax treatment. Early attempts to remedy the situation and allow complete collapse of the diseased areas consisted of opening the chest and severing the adhesions under direct vision (open intrapleural pneumonolysis), but not for many years was this method developed to the point of reasonable safety and freedom from complications.

It remained for Jacobaeus, in 1913, to devise a method of severing adhesions under direct vision, but without opening the chest. He utilised two cannulas, inserted through neighboring intercostal spaces, one resembling a cystoscope, by means of which the adhesions were brought into direct view, the other providing a means of introducing the galvanocautery. With a few technical modifications this is the method used most widely today.

Intrapleural pneumonolysis by the Jacobaeus technic soon established itself as a valuable procedure in the collapse therapy of pulmonary tuberculosis and its use has become widespread. Unlike most other surgical procedures, it is not in itself a collapse measure; it merely serves to improve the collapse resulting from a previously established artificial pneumothorax.

During the past three years, 130 patients at the Texas State Sanatorium have been subjected to thoracoscopy. In eight of these cases it was found that the adhesions were of such extent or thickness that it seemed inadvisable to attempt to sever them. It has been the policy here not to attempt wide dissection of extensive adhesions in cases in which the disease is essentially unilateral; in these it is felt that thoracoplasty offers less risk and a better prognosis. In cases with

extensive contralateral disease, sufficient to contraindicate thoracoplasty, more chances have been taken. In 122 patients the adhesions were severed, in whole or in part. The operations were done by two thoracic surgeons, Dr. J. Emerson Dailey of Houston and Dr. Robert Shaw of Dallas, using the Corylles thoracoscope and cautery unit.

The 122 patients in whom pneumonolysis was done represent roughly ten per cent of those given artificial pneumothorax during the same period of time. Duration of the pneumothorax before operation varied from one to eight months. Follow-up of patients was brief because of time limitations governing the stay of patients in the sanatorium.

TABLE I

Thoracoscopies	130
Found not suitable for pneumonolysis	8
Pneumonolyses	122
Cavity closed, negative sputum	48 (39.3%)
Apparent cavity closure, but sputum positive	29 (23.8%)
Cavity open, positive sputum	34 (27.9%)
Followed less than 1 month	11 (9.0%)
Cases done in two stages	5

As is often the case, the figures fail to tell the complete story (Table 1); they do compare rather favorably with those of other authors. In several cases, apparent closure of cavities and conversion of the sputum resulted from the pneumothorax alone; these are included in the above table with all operated cases in which, on discharge, the cavity was closed and sputum absent or negative for tubercle bacilli. Inclusion of these cases increased slightly the incidence of favorable results. Pneumonolysis was decided upon in these cases because it was felt that the collapse could be made more selective thereby and the incidence of complications, especially fluid and empyema, lessened. On the other hand, results in some cases in which adhesions were only partially cut, could have been improved if the patients had remained in the hospital long enough for a second stage to be done. It is frequently found that

these partially severed adhesions will stretch considerably and that at a later date they can be completely divided with excellent results.

In fourteen of the cases in which the cavity was apparently closed, but the sputum remained positive, there was sufficient disease present in the contralateral lung to account for the failure to obtain sputum conversion. In some of these the pneumonolysis resulted in a selective collapse which allowed us to institute bilateral pneumothorax at a later date to control the contralateral disease.

Complications

The incidence of serous effusion into the pleural space was high; almost all cases developed a small amount of fluid which in most instances was absorbed spontaneously and rapidly. In the early cases of the series we felt that the presence of fluid was of little moment, and aspirations were not resorted to unless the amount was large or absorption was unusually delayed.

The result of this policy was the development in a large number of cases of a non-expansile lung. At present, we believe that fluid in amounts larger than that which fills the costo-phrenic angle should be aspirated, if still present a few days after operation, and that aspiration should be repeated often if the fluid tends to reform. The result has been that the incidence of non-expansile lungs in the more recent cases has been greatly reduced. We feel very strongly that an expansile lower lobe is greatly to be desired except in cases of extensive disease in which it is doubtful that reexpansion of the lung in the future can ever be safely accomplished.

Some cutaneous emphysema has developed in practically every case. The only harmful effect has been the discomfort to the patient. When large amounts of air escape through the trocar wounds, earlier and more frequent pneumothorax refills must be given to prevent reexpansion of the lung.

There have been seven cases of tuberculous empyema following pneumonolysis, none of mixed infection. In some of these it is probable that a bronchopleural fistula was present though none was persistent or definitely proven. Just how much the operation should be blamed for the development of tuberculous

empyema is debatable; certainly in some of the cases it was not a causative factor as tubercles could be plainly seen on the pleural surface of the lung at the time of operation. The incidence of tuberculous empyema is perhaps as high in simple pneumothorax cases, if extensive disease was present before collapse was instituted.

There have been three cases of obliterative pleuritis following pneumonolysis, in all of which it is probable that the operation was the causative factor. Hemorrhage into the pleural space was a definite factor in two of these cases. In one, a moderate amount of frankly bloody fluid was aspirated, and in the other well over a litre; in both cases the bleeding stopped spontaneously. In the third case bleeding was not a factor.

In no case has a pleuro-cutaneous sinus developed at the site of the trocar wound, nor has wound infection occurred.

There was one death in the series, possibly related to operation. This was a result of spontaneous pneumothorax occurring a week after all adhesions suspending a large apical cavity had been cut. The cavity was apparently blocked and failed to close. Death occurred four days after the spontaneous collapse developed, in spite of almost continuous aspiration of huge quantities of air.

This failure of some cavities to close after all surrounding adhesions have been cut occurs in a small number of cases, but is one of the most discouraging results of treatment. Often, instead of collapsing, the cavity becomes larger and further collapse of the lung fails to reduce its size. The cause is apparently a tuberculous endobronchitis; the resultant edema produces a stenosis of the bronchus draining the cavity which acts in the manner of a check-valve. Air enters the cavity during inspiration but remains trapped and the cavity is thus unable to close. In two such cases which were recently bronchoscoped, a tuberculous bronchitis was quite evident. These "check-valve," "balloon" or "blocked" cavities, as they are variously called, are a source of great difficulty to anyone employing collapse therapy; the recent interest in direct cavity drainage and aspiration by the technic of Monaldi offers hope for a more effective mode of treatment than has heretofore been available.

Contralateral spread of the disease was

infrequent, and in no case did it seem directly due to operation.

Summary

One hundred and thirty consecutive cases in which thoracoscopy was done are presented.

In eight of the cases it was not deemed advisable to attempt to sever the adhesions.

In one hundred and twenty-two either a partial or complete pneumonolysis was done.

In five of the cases the adhesions were cut in two stages.

At the time of discharge, the sputum was negative or absent and no cavity was visible in 48 patients, or 39.3 per cent of the patients who were subjected to pneumonolysis.

In 29 patients (23.8%) no cavity was visible after operation but the sputum remained positive. In fourteen of these it is probable that the sputum was coming from disease in the contralateral lung.

The cavity remained open and the sputum positive despite operation in 34 (27.9%). It is probable that some of these cavities could have been closed by further severance of the adhesions at a later date, had the patients remained in the sanatorium.

Eleven or 9 per cent of the patients remained under observation less than a month and the results in these cases are not included.

There was one death, which occurred twelve days after operation, possibly related to the

procedure; the immediate cause of death was spontaneous pneumothorax. No other cases of spontaneous collapse occurred.

Tuberculous empyema developed at some time during the postoperative course in seven patients.

There were two cases in which definite hemorrhage into the pleural space occurred; in these two and in one other in which bleeding was not a remarkable feature obliterative pleuritis occurred.

At least a "drop" of fluid developed in practically every case. Before a policy of early and frequent aspirations was followed, a large number of non-expansile lungs resulted. The incidence of this complication was later greatly reduced by earlier aspiration of effusions.

Contralateral spread of the disease following pneumonolysis occurred in a few patients, but in none was there any evidence that operation was a causative factor.

Subcutaneous emphysema of variable degree developed in practically every case.

Conclusions

In about ten per cent of pneumothorax patients, indications for closed intrapleural pneumonolysis have been found.

In something more than half of these (63%) cavity closure can be expected.

The operation is a definite aid in collapse therapy.

Air Embolism: Its Cause and Treatment

SHAW McDANIEL, M.D.
Houston, Texas

There are few more dramatic or regrettable situations in medicine than the occurrence of an air embolus. At first thought, it might seem a rare and unimportant condition to be dismissed lightly, until we consider that the health of every diver or tunnel worker depends on his knowledge of its prevention, that every chest surgeon must constantly be on guard against its occurrence, and that the life of every pneumothorax patient may depend on his doctor's awareness of the fatal consequences of an air embolus.

In earlier days, our medical literature took no cognizance of the entity except in re-

ference to Caissons disease or the "Bends". This interesting disease is peculiar to the man working under high atmospheric pressures who is restored to a lower pressure too quickly. The nitrogen of the air is forced into solution in the blood and tissue fluids of the victim by the increased pressure, where it remains until he is brought into a diminished pressure when it comes out of solution again, and if done too rapidly, forms bubbles of nitrogen in the blood vessels and tissues all over the body.

The symptoms and signs depend on the location of these bubbles; only in the brain

or coronary arteries do they cause death. Ninety-five per cent of emboli occur within three hours after the decompression. Pain is the most common symptom and occurs usually in the legs and muscles due to small bubbles in the capillaries of muscles and nerves. Autopsy on fatal cases usually shows coronary or cerebral emboli. After the condition has occurred, recompression with later gradual decompression is the treatment of choice, resulting in relief to 90 per cent of all cases. Using this technique during the construction of the Hudson River tunnel, a drop in mortality of from 25 to 1 per cent was observed. Caissons disease has been a serious handicap to underwater diving, not only from the medical, but also from the economic side. A diver working at a depth of 250 feet for half an hour requires three and one-half hours to be properly decompressed. Obviously, this limits his usefulness to a great degree. Dr. End has recently pointed out that helium is only one-half as soluble as nitrogen, but three times as diffusible, so that when breathed under pressure, only one-half as much helium will be dissolved in the tissue fluids, and it will come out of solution three times as rapidly as nitrogen. It is also economical as it can be constantly rebreathed. A new diving suit has been constructed utilizing a compressed mixture of oxygen and helium in tanks with which a worlds record dive of four hundred and twenty feet was made. Decompression took only one and three quarter hours.

More frequently these days do we see references to air entering the blood by other means than increased pressure. When air enters the general systemic veins it may cause death, but the seriousness of the condition depends on the amount entering and the rate of entrance. Moore and Braselton at the University of Texas have calculated that the fatal dose of air for a 150 pound man would be 525 c.c., if injected rapidly. This is based on experiments on dogs. In one dog 3910 c.c. of air was injected over a period of 87 hours before death resulted. Oxygen had the same effect. Death is generally thought to be caused by failure of the right side of the heart resulting from blocking of the pulmonary circulation and interference with ventricular output due to air bubbles. Apparently, the lung capillaries form an effective

barrier to the air as it is never seen on the arterial side. Fulcher, in Washington, D. C., reports a very interesting case where the patient was being given an infusion from an apparatus which used compressed air to force the fluid into the vein. Due to negligence of the attendant, air was allowed to rush into the vein after the *last of the infusion had gone in*. The patient immediately went into collapse and became cyanotic and pulseless. A loud thrashing murmur was audible from the heart. With great presence of mind the doctor re-inserted the needle and forced some 3000 c.c. of saline through the vein. An immediate recovery ensued. Apparently the saline forced the air out of the right ventricle and allowed re-establishment of its circulation. There have been many cases reported in which air entered the systemic veins by various means; injection of oxygen into the knee joint, perirenal insufflation, thyroid surgery, pneumoperitoneum, and Fallopiian tube insufflation just to mention a few. These, however, are rather rare and isolated cases.

Of much more interest and importance today is the air embolism following or complicating measures aimed at collapse of the lung in pulmonary tuberculosis. This type of embolism differs from the others in that the air enters directly into a pulmonary vein and is carried straight away into the left ventricle and thus out into the general arterial circulation. Likewise, this type is far more dangerous and frequent than other air emboli. Almost everyone doing collapse treatment has seen or heard of cases of this nature, usually fatal. Bruns reports 13 cases in some 12,000 pneumothorax refills. Reyer and Kohl report 10 cases during their last four years of routine work. At the Chicago Municipal Tuberculosis Hospital 28 cases in 83,000 refills occurred. Probably, the incidence would be much higher if the many cases labeled pleural shock were reported correctly as being air emboli. I do not believe that such a thing as pleural shock exists, and that it is a myth which is being perpetuated on a medical public by authors too willing to accept long established precedent no matter how nebulous and vague. Most of these cases of so called pleural shock, if carefully analyzed, will be found to be due to air embolism or spontaneous pneumo-

thorax. There will be a few left which are not so readily explained, but to heap them all into a pile and label it "pleural shock" is being both evasive and unscientific.

Air can apparently enter the pulmonary vein in three ways. It can be injected directly into the vein when the pneumothorax needle has been inserted too far and has pierced the lung. This is probably the most common accident. Secondly, air can enter through a tear in the visceral pleura where a pneumothorax already exists, and thirdly, air can be sucked into an injured vein from the pulmonary alveoli. Moore and Braselton showed exactly what happens once the air gets into the pulmonary vein. They injected air into a pulmonary vein in 27 cats, and under direct vision watched the air obstruct the coronary arteries with resulting death from ventricular fibrillation in from two to three minutes. The coronary arteries being the first aortic branches probably receive air in many instances, while in others most of the air passes upwards into the cerebral arteries. This accounts for some of the cases being immediately fatal while others show evidence of hemiplegia and various cerebral phenomena. Considering proportional weights, it is calculated from these experiments that 35-40 c.c. of air in a pulmonary vein could be fatal to a man.

What can be done once this serious mishap has occurred, and how shall we prevent it from happening? The most logical treatment yet devised for the acute attack is to literally stand the patient on his head. If the air has entered the coronaries, he will probably be dead anyway, and if it has reached the cerebral vessels, inversion of the body will cause gravitation of the air away from the brain. This simple expedient has been reported on several occasions in the literature with almost immediate recovery. Other than this the treatment is supportive and symptomatic.

As far as prevention is concerned, the important thing is good technique on the part of the pneumothorax operator. I am firmly convinced that the percentage of accidents would be almost nil if the operator would always be sure of a proper manometer reading before injecting any air. This reading simply shows that the needle point is in the pleural space and not in the lung or an ad-

hesion band. The practice of running air through the needle when it is in place in the chest to "clear" it when the manometer readings are not quite satisfactory cannot be too heartily condemned.

However, even in the best of hands an occasional case will crop up. Moore and Braselton made the interesting observation in their cat experiments that a large quantity of CO_2 could be injected into the pulmonary vein without any appreciable effect, while much smaller quantities of air or oxygen would cause death. The CO_2 disappeared almost immediately on contact with the blood, a fact that they explained not by the absorptive action of hemoglobin, but by chemical combination with the buffers of the blood to form bicarbonates. Again, on the basis of proportional weights, they calculated that 450 c.c. of CO_2 could be injected into the human pulmonary vein with relative safety.

This work gave me the idea that it would be much safer to do all initial pneumothorax treatments and difficult refills with CO_2 . Using the apparatus perfected by Lewis in doing artificial pneumoperitoneum, the whole procedure was made extremely simple. At the present time, thirty-two patients have had their initial collapse and several subsequent refills with carbon dioxide, while approximately half as many more were attempted, but without success, because of the absence of a free pleural space. The technique was exactly the same as when air is used, and fluoroscopic and x-ray follow-ups revealed a typical and satisfactory pulmonary collapse. After the first two or three refills, air was substituted for the carbon dioxide because it was found that air did not absorb nearly as rapidly and by that time the pleural space was so free that danger of embolism was greatly minimized. In none of the cases was there a reaction of any sort. It is realized that in such a small series of cases the likelihood of any type of reaction occurring would be remote, and I am not attempting to prove the efficacy of the procedure by these results. Rather, the cases simply show that carbon dioxide pneumothorax is a safe, simple and practical method of collapse, and that the inherent value of the idea must be deduced from the already discussed theoretical and experimental considerations.

Summary

Air emboli occur in Caissons disease, conditions where air enters the systemic veins, and where air enters the pulmonary veins. The latter is the most frequent and fatal accident, and is usually seen following improperly done pneumothorax. The use of Carbon dioxide, instead of air, for initial collapse is urged because of experimental data showing its relative harmlessness even after entering the pulmonary vein. Thirty-two cases of tuberculosis collapsed with carbon dioxide are reported.

1118 Eagle Avenue.

Bibliography

1 Shilling: *U. S. Naval Med. Bull.*, V-36, Jan. 1938, No. 1.

- 2 Schattenberg & Ziskind: *Amer. Jour. Clin. Path.*, V-9, No. 4, July, 1939.
- 3 Fulcher: *Med. Ann. Dist. Columbia*, V-5, No. 12, Dec. 1936.
- 4 Richardson, Coles & Hall: *Canad. Med. Assoc. Jour.*, V-36, No. 6, June 1937.
- 5 End: *Jour. Ind. Hyg. and Tox.*, V-20, No. 8, Oct. 1938.
- 6 Wolfe & Robertson: *Ann. Int. Med.*, V-9, No. 4, Aug. 1935.
- 7 Cobbs: *Amer. Rev. T. B.*, V-28, No. 2, Aug. 1933.
- 8 Pollak: *Amer. Rev. T. B.*, V-28, No. 2, Aug. 1933.
- 9 Weyrauch: *J.A.M.A.*, V-114, No. 8, Feb. 24, 1940.
- 10 Walsh & Krieger Goldberg: *J.A.M.A.*, V-114, No. 8, Feb. 24, 1940.
- 11 Moore & Braselton: *Bull. John Sealy Hospt. & Med. Sch.*, V-1, No. 5, May 1939.
- 12 Moore & Braselton: *Am. Surgery*, V-112, No. 2, Aug. 1940.
- 13 Moore & Braselton: *South. Surgeon*, V-9, No. 10, Oct. 1940.
- 14 Lewis: *Tex. State Jour. Med.*, V-25, No. 4, Aug. 1939.

STATE TUBERCULOSIS SANATORIUM

(Continued from page 135)

largest dormitory of the group is the 187-bed Children's Hospital, pictured in the left foreground. The infirmary type wards range from fifty to seventy-five beds each and have individual rooms, hot and cold running water, steam heat and all steel furnishings. Five of the infirmaries have two stories and elevator systems. The lobbies and corridors are floored with asphalt tile, while the baths and lavatories are finished in white tile. Three of the dormitories have fluoroscope machines. A large pathological and x-ray laboratory is maintained. Practically all modern and accepted forms of therapy are performed. The institution maintains two well-equipped operating rooms.

The hospital has its own post office (Sanatorium, Texas), farm, garden, commissariat, poultry and hog farm, dairy, ice and refrigeration plant, power and disposal units, laundry, library, picture shows and school of nursing. There are ten licensed physicians, including the superintendent and medical director, and eighty-five nurses.

Under laws governing the operation of the sanatorium, patients are permitted to remain at the hospital nine months. The law also reads that patients shall be between the ages of 5 and 60 years and that such patients shall be in an early and curable stage of the disease. Dr. J. B. McKnight is superintendent and medical director of the institution.

THE VETERANS ADMINISTRATION FACILITY

(Continued from page 136)

the excellence of its climate. The elevation, prevailing temperatures and beautiful scenery of the area have established it as a health and recreation center. The State of Texas maintains a tuberculosis hospital at Kerrville and there are numerous private sanatoria. Along the banks of the beautiful Guadalupe river are many famous camps for boys and girls, operated throughout the summer months. In addition there may be found hundreds of private homes to which citizens living in a less salubrious climate repair during the warm season.

The hospital is adequately staffed and furnished

with the latest types of scientific equipment. The standards maintained qualify the institution as fully accepted by the American College of Surgeons. In the treatment of tuberculosis the approved and accepted methods are utilized, including chest surgery and other elements of collapse therapy. Similar standards are maintained in general medical and surgical units.

—FRANK B. BREWER, M.D., Manager.

THE LONG SANATORIUM

(Continued from page 138)

the greatest good for the greatest number would have to be constructed and operated in such a manner as to afford all necessary facilities for comfort, feeding and treatment; and all this, at a cost within the reach of those with moderate means. Thus the Long Sanatorium, steam heated throughout, with hot and cold running water, private glassed in sleeping porches, and bath facilities in every room, took form in Dr. Long's mind.

The sanatorium had all of the accommodations considered necessary at that time and during the twenty one years of its operation, it had improvements added from time to time and it is today modern in every respect. During that time it has cared for many hundreds of cases at a nominal cost. From its inception, it has been a privately owned sanatorium and is still under its original ownership of Dr. and Mrs. A. D. Long. Farsighted financial planning in the beginning has enabled the institution to retire all of its indebtedness. Much has been learned by the management about the care, treatment and cure of tuberculosis and with this valuable experience as a background, the management looks forward to many more years of useful service to those suffering with tuberculosis.

The rates are \$20.00, \$22.50, and \$25.00 dollars per week which includes room, board, nursing and medical care. There are fifty beds in the sanatorium and two physicians reside at the institution. Nurses, especially trained in tuberculosis, are on duty day and night. Dr. A. D. Long is the Medical Director and Dr. T. F. Carbrey is Associate Medical Director. Mrs. Albina Schauwecker is the Superintendent of Nurses; and the sanatorium is under the personal direction of Mrs. A. D. Long.

Special Article

Extraperiosteal Pneumothorax in Treatment of Pulmonary Tuberculosis

A Preliminary Report*

CHARLES PHILAMORE BAILEY, M.D.

*Philadelphia, Pennsylvania***

This is the name applied to a permanent surgical collapse procedure devised in an attempt to avoid most of the more serious disadvantages and dangers of both thoracoplasty and extrapleural pneumothorax. Time will show to what extent it will succeed.

The indications are: those cases which are suitable for thoracoplasty or extrapleural pneumothorax.

The surgeon can estimate from the pathology as shown by x-ray, how many ribs should be resected to produce an effective thoracoplasty. The usual thoracoplasty incision is made; then the previously estimated number of ribs are completely denuded of periosteum from transverse processes well anteriorly. A piece of the 2nd rib is resected to permit ready access to the first rib. The under surface of the first rib is stripped of periosteum; and an extensive Semb apicolysis is performed. The periosteum on the upper surface is not disturbed; thereby leaving intact the insertions of the scalenus anticus and medius, and avoiding the head-lean which makes up part of the deformity of thoracoplasty.

The apicolysis is carried down to the hilum, and posteriorly down in the paravertebral gutter to the level of the lowest deperiostealized rib. The posterior mobilization is rendered complete by cutting and ligating the intercostal bundle, nerve, and vessels posteriorly.

The chest wall is closed over the ribs in the usual thoracoplasty manner.

Large amounts of sero-hemorrhagic fluid

form in the space and must be aspirated daily and replaced by air. The excessive fluid formation prevents any tendency to readherence of the walls of the space, such as seen after extrapleural pneumothorax. Positive pressures are, therefore, not necessary.

There is very little interference with cough and expectoration in the early postoperative period, probably due to the maintenance of the chest wall rigidity. Atelectasis and spread of the disease have not been seen in any of these cases, and should be minimal because of the maintenance of efficient coughing.

Paradoxical breathing is, also, largely due to lack of chest wall rigidity; and it has not been seen in any of these cases.

The collapse is practically always a perfect anatomical apical selective or concentric one; and of much higher degree than in the ordinary staged thoracoplasty. This should make for a high percentage of cavity closure.

What about bronchial fistula formation into the space? Fistulae occur in a surprisingly large percentage of cases of extrapleural pneumothorax due to the fact that the outer wall of a peripheral cavity receives most of its blood supply from small vessels which traverse the endothoracic fascia. When this fascia is separated to produce the space, these vessels are torn, and necrosis of the cavity wall may occur. In extraperiosteal pneumothorax the intercostal muscle bundles and their anterior (internal mammary) blood supply are left intact upon the parietal pleura, thereby preserving the vast majority of the peripheral blood supply.

What happens to the denuded ribs? Our experience with this procedure extends over only eleven months. The ribs do not change in x-ray appearance over that period of time.

What happens to the space? The space between the denuded rib is maintained by air refills until good bone regeneration has oc-

* Delivered 3/11/41 before the Laennec Society, Philadelphia, Pennsylvania.

**Thoracic Surgeon to St. Luke's and Children's Medical Center, Philadelphia; Hahnemann Medical College and Hospital, Philadelphia; Wilmington Memorial Hospital, Wilmington, Delaware; and the Delaware State Tuberculosis Sanatoria.

cured in the resected periosteum over the collapsed lung. Then the overlying ribs are quickly and easily removed, being almost bloodless. At this second operation, the cough mechanism is again unimpaired, as the rigidity of the chest is now maintained by the new regenerated ribs on the lung surface. It is always possible, and is technically easy to remove the overlying denuded ribs, and to convert the case into a thoracoplasty. This is the same problem which is to be met in a good extrapleural pneumothorax maintained over three years. The space in an old extrapleural pneumothorax becomes lined with a thick firm calcified layer which prevents any lung re-expansion. Probably, the best thing is conversion to thoracoplasty by removing the overlying ribs.

Often, the case is converted into an extrapleural oleothorax. It would be possible to produce an extraperiosteal oleothorax. Oleothorax is in some disrepute at present.

Perhaps, if refills were discontinued, fluid would fill the space, fibrin deposition occur, coagulation, and later organization to form a fibrothorax. This is the usual process in the space left after pneumonectomy by the Rienhoff technic.

It is probably much better judgement to convert all these cases into thoracoplasty, or rather to consider this as a new way to perform a thoracoplasty. At the first operation the lung is collapsed in a complete anatomical manner; and yet most of the usual complications are avoided because the rigidity of the chest is maintained by the old denuded ribs. Control of the pulmonary lesion is established shortly after the first operation, rather than after the last one as in ordinary thoracoplasty.

Report of Cases

This is only a preliminary report. We have done only 12 cases, over an eleven month period. In 10 cases cavity closure was obtained within three months of operation. One of the others, with a giant apical cavity, is only 2 months postoperative, and appears to be closing off satisfactorily (now 1/6 diameter). The other had only a lower rib stripping for a basal lesion. It now appears that a more extensive collapse will be necessary; and is to be done in the near future.

Six cases were bilateral; 3 with active con-

tralateral disease without pneumothorax. One has progressed on the contralateral side, and died 10 months later of this disease. One has cleared up on the contralateral side since cavity closure on the operative; and is now sputum negative. The third is to have a pneumothorax induced on the unoperated side.

There were no primary infections of the dead space. However, the first case was filled postoperatively at high pressures, like an extrapleural pneumothorax. On the 6th day, shortly after a refill, he had a severe coughing spell leading to rupture of the wound and secondary infection of the space. A more recent case developed a maniacal psychosis postoperatively and was shackled down in bed. She developed a great pressure sore over the lower third of the incision which extended into the dead space, and infected it on the 10th day. Both of these were treated by removing the overlying ribs and packing. The second one died within 6 weeks of operation from a combination of psychosis, sepsis, partial starvation, and inanition. This was our only operative death; and was in a unilateral and apparently favorable case. Autopsy showed cavity closure on the operated side.

Of the remaining 8 unilateral cases, 6 are negative. One of these positive cases is quite recent and it appears probable that conversion may yet be obtained. The other probably received an insufficient collapse.

Summary

1. A new method of surgical pulmonary collapse has been described. It has been performed in 12 cases.
2. Good anatomical collapse in one stage is routine, and its maintenance is relatively easy.
3. Probably there will be fewer serious complications than in either routine thoracoplasty or extrapleural pneumothorax.
4. The space should eventually be obliterated by conversion to thoracoplasty. In other words, this should be considered as a different way of staging a thoracoplasty. At the first stage the lung is collapsed and at the later, the chest wall is collapsed.
5. Other methods of obliterating the originally produced space are questionable procedures, and are not at present advisable.

136 South 16th Street.

Organization News

NEW YORK STATE CHAPTER MEETING

The New York State Chapter of the American College of Chest Physicians held its annual meeting at the Hotel Biltmore on Friday, January 17, 1941. Over ninety physicians registered for the meeting. Following an excellent paper by Dr. Chevalier Jackson, Philadelphia, Pa., on "Bronchoscopy in Diseases of the Chest," the rest of the morning session was devoted to a symposium on cancer of the lung, with Dr. W. Emory Burnett, professor of clinical surgery, Temple University Medical School, presenting the principal paper on "Surgery of Carcinoma of the Lung." Dr. Burnett's paper was discussed by Drs. George Ornstein, Samuel Thompson, Benjamin Fried, Charles Hamilton, and by Drs. Chevalier L. Jackson and Frank W. Konzelmann, Philadelphia, Pa. The Chairman of the morning session was Dr. Edgar Mayer, New York City.

The afternoon session was primarily taken up with scientific papers on industrial pulmonary diseases and tuberculosis. Dr. Leonard Greenburg, executive director, Division of Industrial Hygiene, Department of Labor, State of New York, explained that in his opinion the underlying etiological factors involved in the development of silicosis were:

1. Free silica present
2. Duration of exposure
3. Concentration
4. Personal susceptibility

Dr. Edgar Mayer's presentation on "Tuberculosis in the Army Under the Present Epidemiologic Conditions," was instructive and of timely importance. As a result of a study made by both Dr. Mayer and Dr. Israel Rappaport, our previous concept of the epidemiology of tuberculosis, may be changed. Because of his inability to be present, on account of illness, Dr. Rappaport's excellent discussion was read by Dr. Edgar Mayer.

"Postoperative Atelectasis - Diagnosis - Prevention and Treatment," was the subject of a paper by Dr. Arthur Q. Penta, Schenectady, New York, who strongly advised that once the diagnosis of postoperative atelectasis has been made, bronchoscopic aspiration should

be carried out as soon as possible, if pneumonitis and pulmonary suppuration is to be avoided.

The final presentation of the afternoon session was a sound motion picture on "Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis," by Drs. James Edlin and his associates, Sydney Bassin and Walter Lichtenberg. The film with its excellent narration and complete in every detail contained several scenes on cine-fluorography. The Chairman of the afternoon session was Dr. Nelson W. Strohm, Buffalo, New York.

During the business meeting which followed the scientific session, several important matters were discussed and a motion was passed, for a committee, to be appointed by the President, to confer with the officers of the College regarding ways and means to finance the State Chapter.

A motion by Dr. Tillou of Buffalo, New York, that every member of the American College of Chest Physicians in New York State, be asked to contribute two (\$2.00) dollars to defray the current expenses of the New York Chapter, was unanimously passed. Dr. N. W. Strohm, Vice-President of the Chapter and President of the Erie County Medical Society, reported that plans are under way for a meeting of the New York Chapter to be held in Buffalo, New York, during the coming meeting of the State Medical Society.

Reported By:

Arthur Q. Penta, M.D., F.A.C.C.P.
Secretary.

NOTICE OF CHANGE OF MEETING

The Sectional Meeting of the American College of Chest Physicians scheduled to be held at Sea View Hospital, Staten Island, New York, on *March 14th*, has been postponed to *April 18th*. The program, as published in the March Issue of "Diseases of the Chest" will be presented. For further information contact Dr. David Ulmar, *Chairman*, 150 East 52nd Street, New York, N. Y.

BURGE TUBERCULOSIS CLINIC

The Doctors Hospital of Philadelphia, Pennsylvania, announces the establishment of the Burge Tuberculosis Clinic of the Doctors Hospital.



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See the back outside cover for the Preliminary Scientific Program of the Seventh Annual Meeting of the American College of Chest Physicians, Statler Hotel, Cleveland, Ohio,

May 31 - June 2, 1941

Organization News

MISSOURI CHAPTER TO BE ORGANIZED

Dr. H. I. Spector, St. Louis, Missouri, Governor of the College for Missouri, announces that plans are being perfected for the organization of the Missouri State Chapter of the American College of Chest Physicians. The organization meeting will be held in conjunction with the annual meeting of the Missouri State Medical Society to be held at St. Louis in April.

There are thirty Fellows and Associates of the College in the State of Missouri and they will receive formal notification concerning the date, place and program for the meeting. All members of the College in the State of Missouri, who are in good standing in the American College of Chest Physicians will be eligible for membership in the State Chapter.

Upon organization and the election of officers, the Missouri State Chapter will apply to the Board of Regents of the College for a Charter.

BEXAR COUNTY TUBERCULOSIS COMMITTEE

The following physicians from San Antonio, Texas, have been appointed as members of the Tuberculosis Committee of the Bexar County Medical Society: Dr. R. G. McCorkle, *Chairman*; Dr. James L. Anderson, Dr. Chas. J. Koerth and Dr. James Nixon. They are all Fellows of the American College of Chest Physicians.

TEXAS STATE CHAPTER TO BE ORGANIZED

A dinner meeting of the members of the American College of Chest Physicians in the State of Texas will be held in Oak Room of the Texas Hotel, Fort Worth, Texas, at 6:00 p. m., on Tuesday, May 13th. A State Chapter will be formed to affiliate and meet with the State Medical Association of Texas. The following program has been arranged:

1. Paper—Fungus Disease of the Lung.
By: Dr. R. G. McCorkle, San Antonio, Tex.
Discussion by: Dr. Abbe Ledbetter, Houston, Texas; Dr. Leslie Smith, El Paso, Texas.
 2. Organization of the Texas State Chapter of the American College of Chest Physicians:
 - a. Adoption of Constitution and By-Laws.
 - b. Election of Officers.
- Dr. Orville E. Egbert, El Paso, Texas, Governor of the College for the State of Texas will preside at the meeting.

There are forty-one members of the American College of Chest Physicians in the State of Texas.

The State Medical Association of Texas will meet at Fort Worth, Texas, May 12-15th.

AMERICAN PUBLIC HEALTH ASSOCIATION

The Executive Board of the American Public Health Association announces the dates of the 70th Annual Meeting as October 14-17, 1941. The meeting place is Atlantic City, New Jersey. Headquarters for the meeting will be the Convention Hall. Residence headquarters will be the Hotel Traymore.

The 69th Annual Meeting held in Detroit in October, attracted an attendance of more than 3100 from all parts of the United States and also from Canada, Cuba and Mexico. The 70th Annual Meeting, it is expected, will bring together more than 3500 professional public health workers.

A New Jersey Committee responsible for entertainment, inspection trips and other local aspects of the meeting is being formed under the direction of Dr. S. L. Salasin, Health Officer of Atlantic City.

A number of related organizations habitually meet with the American Public Health Association. They will do so again at Atlantic City. Among them are the American School Health Association, the International Society of Medical Health Officers, the Association of Women in Public Health, the Conference of State Sanitary Engineers, the Conference of Municipal Public Health Engineers, and the Conference of State Provincial Public Health Laboratory Directors.

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Equipped with X-ray and Fluoroscope; Pneumothorax.

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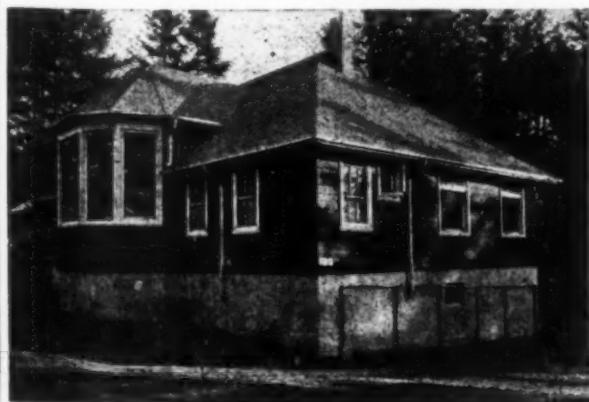
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MODERATE RATES

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MEDICAL DIRECTORS

Ralph C. Matson, M.D., & Marr Bisacillen, M.D.

1004 Stevens Building

Portland, Oregon

GRACE LUTHERAN SANATORIUM*(Continued from page 139)*

Reverend Paul F. Hein, D. D., who has been Executive Officer of the Joint Synod Home Mission Board, was called to San Antonio to take charge of the situation.

In September, 1913, when the sanatorium admitted its first patient, Dr. Hein was appointed its pastor and superintendent. In 1914 Dr. Hein became pastor of Grace Lutheran Church, and combined his sanatorium duties with those of the church. Since 1935, however, when he resigned as pastor of the church, he has devoted his entire time to the sanatorium. During this period of his superintendency all of the old cottages have been replaced by new and modern bungalows.

Patients are admitted to Grace Lutheran Sanatorium irrespective of denomination or creed, and due to the fact that it is supported by the church, high class service and accommodations are given at moderate rates.

The institution is noted for its Christian character and atmosphere, ideal climate, excellent medical and nursing care, beautiful individual bungalows, attractive rooms and grounds. It can accommodate 50 patients in 17 private rooms and 19 bungalows. Since 1913, 2,277 patients have been admitted, and of these about seventy percent have left the sanatorium to resume their regular normal lives and vocations. Rates are from \$20 to \$30 per week, and include medical and nursing care, x-ray, fluoroscope, laboratory, and pneu-

mothorax treatment.

During the year of 1941, \$13,003 was spent in charity work in the institution. The means for the charity work are provided through the sale of Lutheran Christmas seals in Lutheran Congregations of the United States and Canada.

Dr. J. L. Anderson is medical director of the sanatorium, however, the institution is open to any reputable physician. Doctors R. G. McCorkle and C. J. Koerth place many of their institutional patients at Grace. Mr. Herman Ochs is Chairman of the Sanatorium Board.

ELMWOOD SANATORIUM*(Continued from page 141)*

penses on a 50/50 basis. In 1934, Dr. Sim Hulsey was appointed as Assistant Medical Director and now has charge of the operative procedures. In 1935, a bond issue was voted by the City and County for \$27,000.00, P. W. A. participating.

The new building which accommodates sixty-two patients was ready for occupancy in 1937. The thirty-odd old buildings, including the cabins, were removed and the grounds beautified. The present dormitory is modern in every respect. There are three and four bed wards and private rooms for those requiring same.

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